

103

# POTENTIAL HEALTH RISKS FROM CARPETS AND CARPETING MATERIAL

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Y 4. G 74/7:H 34/9

Potential Health Risks From Carpets...

## HEARING BEFORE THE ENVIRONMENT, ENERGY, AND NATURAL RESOURCES SUBCOMMITTEE OF THE COMMITTEE ON GOVERNMENT OPERATIONS HOUSE OF REPRESENTATIVES ONE HUNDRED THIRD CONGRESS FIRST SESSION

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JUNE 11, 1993

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Printed for the use of the Committee on Government Operations



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# POTENTIAL HEALTH RISKS FROM CARPETS AND CARPETING MATERIAL

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FRIDAY, JUNE 11, 1993

HOUSE OF REPRESENTATIVES,  
ENVIRONMENT, ENERGY,  
AND NATURAL RESOURCES SUBCOMMITTEE  
OF THE COMMITTEE ON GOVERNMENT OPERATIONS,  
*Washington, DC.*

The subcommittee met, pursuant to notice, at 9:32 a.m., in room 2247, Rayburn House Office Building, Hon. Mike Synar (chairman of the subcommittee) presiding.

Present: Representatives Mike Synar, Karen L. Thurman, James A. Hayes, J. Dennis Hastert, Deborah Pryce, John L. Mica, and Bernard Sanders.

Also present: Sandra Z. Harris, staff director; James V. Aidala, professional staff member; Elisabeth R. Campbell, clerk; and Charli E. Coon, minority professional staff, Committee on Government Operations.

## OPENING STATEMENT OF CHAIRMAN SYNAR

Mr. SYNAR. The subcommittee will come to order.

This morning's hearing shouldn't be happening. If we knew the answers to questions about possible risks from carpets, if we knew what caused persistent complaints by consumers, and if we knew all that we should know by now, this hearing wouldn't be happening.

Instead, when asked what could be causing these carpet complaints, Federal agencies and manufacturers insist the complaints shouldn't be happening. But the consumers deserve better.

Five years after the Environmental Protection Agency had to replace 27,000 square yards of carpet at its headquarters building, EPA still does not know what caused the problem. They just know that complaints stopped when the carpet was removed.

After years of study by the Consumer Product Safety Commission, they announced that little is known about the possible health effects of chemicals found in carpets.

People spend 90 percent of their time indoors, over 70 percent of the floor space in those indoors is carpeted, and the possible risks from indoor air are listed as one of EPA's top five priorities. Yet the Agency's indoor air program receives only about \$10 million out of a budget of over \$6 billion.

This morning we are going to hear that EPA failed to replicate test results found by Anderson Laboratories, which have sparked so much interest over the past year. Maybe it is a valid test; maybe

it is not. But this test method draws our interest not only because of its startling result—that room air drawn over ordinary carpet can kill test animals—but also because it provides a kind of explanation to those who face a wall of skepticism when they claim they have been injured by carpets in their home or office.

If the Anderson test and the results are valid, then we need to identify the specific problem and take steps to address it. If on the other hand the Anderson test is only an inconsistent or unreliable indicator of potential problems, then we owe the consumers a valid one.

Either way, these are actions that must be taken. We have laws and agencies and declared priorities, now we need to get some answers.

Mr. Hastert.

Mr. HASTERT. I thank the chairman. I am pleased to be here today to address this issue involving accusations by individuals and industries that carpets may be responsible for adverse health effects. I, as everyone else in this room, am certainly concerned about consumer safety. I am nevertheless equally concerned about alarming the public to potential harm without being able to substantiate all those contentions. I hope today that we have a fair and balanced hearing about that scientific evidence that is brought forward.

Indeed, I noted with some of my colleagues on both sides of the aisle that, to date, there is no sound scientific evidence to establish a link between carpet and adverse health effects. In fact, according to the most recent tests conducted by those who are about to testify before us today, the results were significantly different.

I hope that through today's testimony and by weighing that evidence we can start to take a few steps further in finding out what the true problems are, what basic evidence exists, and how we can do a better job of evaluating this issue.

Mr. SYNAR. Thank you.

At this time, I would like to call on a gentleman whose tireless efforts in this area have brought us here today, and I want to tell him how much the subcommittee and staff appreciate his work.

Mr. Sanders.

Mr. SANDERS. Thank you very much, Mr. Chairman.

Let me take this opportunity to congratulate you and your staff for your continued efforts in this area over many years. It didn't just begin yesterday. And let me also take this opportunity to thank Linda Sands of Montpelier, VT, who has gotten me involved in this issue, and the other victims of toxic poisoning around the country who have shown tremendous courage and persistence in demanding that the government take action to prevent what has happened to them from happening to other families.

I have been involved in the issue of carpets and health for over a year now, and want to go on record as agreeing with the chairman of this subcommittee, Mr. Synar, when he states that the studies being discussed today, not only raise new questions, but remind us of EPA's past failures to protect indoor air quality. After years of complaints, we have little good health effects data about most of the chemicals found to off-gas from carpets. After years of complaints, consumers still have difficulty in getting straight an-

swers to questions about chemical risk if they ask carpet retailers, or frankly even if they ask government officials. Most victims of indoor air quality problems are dismissed as cranks; but tell that to a consumer whose family is now chemically sensitized and unable to live an ordinary life.

That is Mr. Synar's statement. I agree with that.

Mr. Chairman, the issue of carpet safety continues to receive more and more national attention and concern from consumers. My office in Vermont continues on a daily basis to receive letters and phone calls from citizens throughout this country who are deeply concerned about this problem.

More importantly, the Consumer Product Safety Commission, a Federal agency that very few Americans know anything about, has received 6,151 telephone calls to their hot line since last October to hear the recorded message on carpets. That is a heck of a lot of phone calls to an agency that nobody knows anything about. But that is another story we will talk about later.

The State's attorneys general, led by the attorney general's office in New York State, are continuing to examine possible legal action in regard to the carpet industry's green tag labeling program. Their view remains that the carpet industry is doing a totally inadequate job in labeling carpets and informing consumers about potential health hazards associated with carpets.

Dade County, FL, has decided to ban carpet in their classrooms. The State of Vermont recently ordered removal of carpets from all of the State offices and a number of major lawsuits around the country have recently been filed arguing that carpets have caused serious health problems.

There have been at least two major conferences on indoor air during the last several months, one in Baltimore, one in Pittsburgh, which focused on the potential health hazards associated with carpets. This issue, therefore, is gaining not only increased consumer attention, but wider attention in scientific circles.

And perhaps most interesting, Mr. Chairman, during the last several weeks my office has received a number of statements from medical doctors throughout the country who from personal experience in treating patients have concluded that their patients' illnesses are directly linked to carpet exposures.

Let me briefly read excerpts from letters that I have recently received from physicians and I ask permission to place into the record the complete text of those records.

Mr. SYNAR. Without objection.

[The information appears in the appendix.]

Mr. SANDERS. A physician from Arkansas, Dr. Aubrey Worrell, Jr., a member of the American Board of Allergy and Immunology and associate clinical professor of pediatrics at the University of Arkansas writes—this is an excerpt—"Dear Congressman Sanders, for several years I have been very concerned about the effect of chemicals in new carpets upon my patients' health." He continues in his description of one of his patients who is a 52-year-old registered nurse.

He writes, "In November 1988, she had a new carpet placed in her home and a strong odor was noted. It contained antistain chemicals, formaldehyde and other chemicals. Within 6 weeks, by

December 1988, she began to develop various illnesses. By the summer of 1989, she had severe fatigue, shortness of breath, insomnia, gastrointestinal pains, and developed a chronic illness.

"She is now totally disabled and probably will be so for the remainder of her life."

That is the end of the quote from the letter she sent to me.

In a letter that was sent to Vice President Al Gore dated March 23, 1993, Dr. Worrell, the same doctor, writes, "I have seen many patients who have become chemically sensitive and completely disabled because of exposure to toxic carpet in their home or their workplace. It is my feeling that the chemicals coming from carpets, in many instances, cause severe illness."

Another physician and clinical assistant professor of pediatrics at the State University of New York at Buffalo, Dr. Doris J. Rapp, wrote, "Dear Congressman Sanders, Over the years I have treated a large number of children from all over the United States, many of whom could no longer attend school after new carpets were placed in their school. Recently in upper New York State, about 30 percent of the teachers in one school and, as indicated by an informal survey done by the parents which is enclosed, over 30 percent of the students have had symptoms which suggest toxic effects from carpeting." She also writes, "it is my conclusion that exposure to carpets which contain chemicals and carpet adhesives can definitely result in neurotoxic damage to some children and adults."

Another physician, Dr. William J. Rea, chief surgeon and medical director of the Environmental Health Center, Dallas, TX, writes, "Dear Congressman Sanders: My colleagues and I have seen over 20,000 chemically sensitive patients over the last 20 years. Some of these patients have been made ill by the fumes emanating from new carpets—some from the carpet glue, some from dyes and fixatives. In addition, we have seen several families who all suddenly became intolerant of their homes when new carpet was installed."

He continues, "We also have observed some small children who were made ill from crawling on the new carpet I hope you can convince the carpet industry to design less toxic carpet."

A medical doctor from Illinois, Dr. Randolph, states in an affidavit, "Based upon reasonable medical certainty," he writes, his patient's health problems were, "directly caused by exposure to carpet, that is by the chemicals emanating from the carpet."

The chief of the chest clinic and medical director at the University of Washington School of Medicine, Dr. Ganesh Raghu, has concluded that his diagnosis of hypersensitivity pneumonitis in a patient is related to exposure to carpets.

Last night I received a letter by fax from a gentleman named Mr. Barry Karr who is president of a group called the Environmental Health Network in Larkspur, CA. We have never met Mr. Karr, nor have we ever spoken to him. He writes in this letter, just for the record, "I represent a group of approximately a thousand people concentrated in California that have multiple chemical sensitivity. People with MCS can have severe to life-threatening reactions from carpeting. Many of these people can trace their initial illness to an office or home where new carpet was installed."

Mr. SYNAR. Mr. Sanders, if you want to kind of start concluding your remarks.

Mr. SANDERS. OK.

On April 5, 1993, my assistant Anthony Pollina and I went to northern Georgia where we talked to some workers who worked in the carpet industry. Three of them related serious health problems associated with their jobs.

Mr. Chairman, as you have just mentioned, one of the ironies of all ironies of this whole situation is that the EPA itself in the late 1980's as an employer suffered a major indoor air quality health emergency which affected thousands of its own employees. To the best of my knowledge, 43 of those employees are today unable to work in the EPA office and are now working outside the site. As you have indicated, the EPA withdrew 20,000 square feet of that toxic carpet.

Let me simply conclude by thanking you very much for arranging this hearing. I look forward to hearing the testimony from our witnesses. Thank you.

Mr. SYNAR. Thank you.

[The prepared statement of Mr. Sanders follows:]

L

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**REP. BERNARD SANDERS**

June 11, 1993

**Opening remarks before the Subcommittee on Environment, Energy and Natural Resources hearing on the health effects of carpets.**

Let me begin by thanking Chairman Mike Synar and the staff of this subcommittee for their strong and continued interest in this important issue. And let me also thank Linda Sands of Montpelier, Vermont and other victims of toxic poisoning around the country who have shown tremendous courage and persistence in demanding that the government take action to prevent what has happened to them from happening to other families.

I have been involved in the issue of carpets and health for over a year now, and want to go on record as agreeing with the Chairman of this subcommittee when he states that the studies being discussed today, "not only raise new questions, but remind us of EPA's past failures to protect indoor air quality. After years of complaints, we have little good health effects data about most of the chemicals found to off-gas from carpets. After years of complaints, consumers still have difficulty in getting straight answers to questions about chemical risk if they ask carpet retailers, or frankly, even if they ask government officials. Most victims of indoor air quality problems are dismissed as cranks; but tell that to a consumer whose family is now chemically sensitized and unable to live an ordinary life."

Mr. Chairman, the issue of carpet safety continues to receive more and more national attention and concern from consumers. My office in Vermont continues, on a daily basis, to receive letters and phone calls from citizens throughout the country who are deeply concerned about this problem. More importantly, the Consumer Product Safety Commission, a federal agency that very few Americans know anything about, has received 6,151 telephone calls to their hotline since last October to hear their recorded message on carpets.

The State Attorney General, led by the Attorney General's Office of New York State, are continuing to examine possible legal action in regard to the carpet industry's Green Tag labelling program. Their view remains that the carpet industry is doing a totally inadequate job in labelling carpets and informing consumers about potential health hazards associated with carpets.

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Dade County, Florida has decided to ban carpeting from it's classrooms; the State of Vermont recently ordered the removal of carpets from more of the State's offices; and a number of major lawsuits around the country have recently been filed arguing that carpets have caused serious health problems.

There have been at least two major conferences on Indoor Air Quality during the last several months, one in Baltimore and one in Pittsburgh, which focussed on the potential health hazards associated with carpets. This issue, therefore, is gaining not only increased consumer attention, but wider attention in scientific circles.

And perhaps most interesting, Mr. Chairman, is that during the last several weeks my office has received a number of statements from medical doctors throughout the country who, from personal experience in treating patients, have concluded that their patients' illnesses are directly linked to carpet exposures. Let me briefly read excerpts from letters that I have recently received from physicians. I ask permission to place into the record the complete text of the letters.

• A physician from Arkansas, Dr. Aubrey Worrell, Jr., a member of the American Board of Allergy and Immunology and an Assistant Clinical Professor of Pediatrics at the University of Arkansas, writes: "Dear Congressman Sanders, For several years, I have been very concerned about the effect of chemicals in new carpets upon my patient's health." He continues in his description of one of his patients -- a 52-year-old registered nurse. He writes: "In November of 1988, she had a new carpet placed in her home and a strong odor was noted. It contained anti-stain chemicals, formaldehyde and other chemicals .... Within 6 weeks, by December of 1988, she began to develop various illnesses. By the Summer of 1989 she had severe fatigue, shortness of breath, insomnia, gastrointestinal pains and developed a chronic illness.... She is now totally disabled and probably will be so for the remainder of her life." In a letter to Vice President Gore, dated March 23, 1993, Dr. Worrell states: "I have seen many patients who have become chemically sensitive and completely disabled because of exposure to toxic carpet in their home or their workplace. It is my feeling that the chemicals coming from carpets, in many instances, causes severe illness."

• A physician and Clinical Assistant Professor of Pediatrics at the State University of New York at Buffalo, Dr. Doris J. Rapp writes: "Dear Congressman Sanders, Over the years I have treated a large number of children from all over the United States, many of whom could no longer attend school after new carpets were placed in their school.....Recently, in upper New York State about 30 percent of the teachers in one school and, as indicated by an informal survey done by the parents (which is enclosed), over 30 percent of the students have had symptoms which suggest toxic effects from carpeting." She also writes: "... it is my conclusion that exposure to carpets which contain chemicals and

carpet adhesives can definitely result in neurotoxic damage in some children and adults."

• Dr. William J. Rea, Chief Surgeon and Medical Director of the Environmental Health Center, Dallas, Texas writes: "Dear Congressman Sanders, My colleagues and I had seen over 20,000 chemically sensitive patients over the last 20 years. Many of these patients have been made ill by the fumes emanating from new carpet -- some from the carpet glue, some from the dyes and fixatives. In addition, we have seen several families who all suddenly became intolerant of their homes when new carpet was installed.... We also have observed some small children who were made ill from crawling on the new carpet.... I hope you can convince the carpet industry to design less toxic carpet."

• An MD from Illinois, Dr. Randolph, states in an affidavit; "based upon reasonable medical certainty," that his patient's health problems were "directly caused by exposure to carpet. That is by the chemicals emanating from the carpet."

• The Chief of the Chest Clinic and Medical Director at the Lung Clinic at the University of Washington, School of Medicine, Dr. Ganesh Raghu, has concluded that his diagnosis of hypersensitivity pneumonitis in a patient is related to exposure to carpets.

• Last night, I received a letter on my fax machine from a gentleman named Mr. Barry Karr. Mr. Karr is Board President of a group called the Environmental Health Network, in Larkspur, California. My office has never met Mr. Karr, or spoken to him. In his letter, he writes "I represent a group of approximately 1,000 people, concentrated in California, that have Multiple Chemical Sensitivity (MCS). People with MCS can have severe to life-threatening reactions from carpeting. Many of these people can trace their initial illness to an office or home where new carpet was installed. Our members report having severe neurological, immunological, and endocrine system problems after exposures to carpeting. I am also disabled by MCS and I find that an exposure to some carpeting, in only a few minutes, will trigger seizures and asthma."

• On April 5, 1993 my Assistant Anthony Pollina and I went to Ellijay, Georgia to speak with three workers who had been employed in carpet factories in that area. All three had no doubts that their serious health problems were related to their employment in the carpet industry. Further, one of the workers, Priscilla Sparks, did an informal survey of carpet workers in the area and found that many of them also complained of health problems associated with employment in the carpet industry.

Mr. Chairman, when we discuss this issue, one of the most interesting and amazing aspects of this whole story is that, irony of all ironies, the EPA itself in the late 1980s, as an employer, suffered a major indoor air quality health emergency

which affected thousands of its own employees, and which many people believe was directly related to the carpets installed in their headquarters at Waterside Mall in Washington, DC.

Employees collapsed at work, some were rushed to the hospital, and the building was evacuated a number of times. Among many other demonstrations, on May 25, 1988 more than 100 EPA employees held a rally outside the EPA headquarters to demonstrate concern over air quality and the "toxic carpet."

To the very best of my knowledge, as a direct result of this terrible health emergency at the EPA headquarters, 43 EPA employees are now participating in the Agency's "alternative workspace" program. Alternative workspace is permitted when a medical evaluation determines that the employee's health is such that he/she cannot be exposed to the workplace environment.

In addition to these 43 other employees, other EPA employees found alternative workspaces without officially going into the program and still other workers have simply left their jobs rather than expose themselves to the environment within the EPA headquarters. I should point out that many of these EPA employees, some of whom have suffered permanent physical disability, are highly trained environmental scientists. Some of these EPA employees wanted to be here today, and some are here. Unfortunately, some of them could not attend because they cannot take the risk of exposing themselves to the environment here in the Rayburn building.

I should mention that the EPA, after intense pressure, finally removed more than 20,000 square feet of the toxic carpet and decided that the new carpet which they installed would be free of 4-PC, one of the many chemicals found in carpets.

Mr. SYNAR. Mr. Hayes.

Mr. HAYES. I just came to see if you really were having this hearing or if it was a private screening of Jurassic Park. Now that I know you are doing your job, I am going to hang around and listen for a while.

Mr. SYNAR. Thank you.

Mrs. Thurman.

Mrs. THURMAN. Thank you, Mr. Chairman. I am looking forward to the testimony today because I think that part of our job in government is to check and make sure that consumers are being protected. I look forward to our testimony.

Mr. SYNAR. Thank you.

Our first witness this morning will be our colleague Nathan Deal from the Ninth Congressional District of the State of Georgia. Welcome Nathan.

As you are sitting down, I would like to ask unanimous consent that the statements from Senator Pat Leahy and Congressman Kennedy also be admitted to the record, without objection.

[The prepared statements of Mr. Leahy and Mr. Kennedy follow:]

**STATEMENT OF SENATOR PATRICK LEAHY  
BEFORE THE  
SUBCOMMITTEE ON ENVIRONMENT, ENERGY AND NATURAL  
RESOURCES  
COMMITTEE ON GOVERNMENT OPERATIONS  
UNITED STATES HOUSE OF REPRESENTATIVES**

**ON NEW RESEARCH ON THE POTENTIAL HEALTH RISKS OF CARPETS**

**JUNE 11, 1993**

Mr. Chairman. I am glad to see that this committee is pursuing the concerns that Congressman Sanders, Senator Jeffords and myself have raised about carpet related health problems. While we have yet to reach a definitive conclusion on the link between certain new carpets and adverse health effects, enough questions have been raised to warrant a detailed investigation of this issue. I would hope such an investigation would be one outcome of this hearing.

Many Vermont families have been touched by air quality problems related to new carpets. My concern has grown as I have worked with those families to resolve their problems. Last year I brought these concerns before the Senate Committee on Government Operations during their hearing on the potential health risks of carpets. Today I would like to emphasize those concerns and share our story with you.

Two years ago the parents of two students at Vermont's Montpelier High School came to my office to ask for help. They said their children were very sick, and that they thought the cause might be new carpet that had been installed in the school.

Mrs. Linda Sands, who you will hear from shortly, and her family had already experienced severe health effects after carpet was installed in their home. After the family went through a detoxification treatment in California, Mrs. Sands was told her son could not tolerate further chemical exposure.

Mr. Donald Kifer told me that his son was recovering from a kidney disease, but that when he returned to school in the fall, he had a relapse. Mr. Kifer said the only change at the school was the new carpet installed during the summer.

An employee of the Vermont Department of Agriculture also called my office. He had heard about the problem at the high school and said his secretary, Shari Aja, became so ill after renovations where new carpet was installed at the Department, that she could no longer come to work.

I then learned that a friend of mine, Dr. David Butsch a surgeon in Central Vermont, was forced to leave his office after new carpet was installed. The office was closed in January of 1991 and has not reopened. He has since moved his office to a new location. He said that he and his staff had not fully recovered and that they had suffered disabilities from exposure to chemicals in the carpet.

Authorities at the high school and the Department of Agriculture contacted the Vermont Department of Health and requested assistance from the state toxicologist, but the state did not have the kind of special equipment necessary to conduct a comprehensive investigation.

In a letter dated October 3, 1992 to then Environmental Protection Agency (EPA) Administrator Mr. William Reilly, I requested that the EPA conduct an immediate and thorough investigation into the health problems at the Montpelier High School.

The Indoor Air Division at EPA responded by sending a voluminous pre-print copy of a manual on building air quality for building owners and facility managers. Mr. Reilly recommended that the school make modifications to the ventilation system as an immediate solution and further suggested the school carry out a comprehensive evaluation of all the potential sources of pollution.

Clearly this action did not help the school or the Department of Agriculture address their questions about the possible toxicity of carpets, or, whether they should remove carpet that appeared to be making some people sick.

In conversations with my staff, EPA officials then insisted that there was no reason to believe that carpet could be the source of the health problems. They said EPA did not have teams of investigators who could do on-site investigations, and that the agency did not have funds to do extensive testing.

On January 2, 1992, after the Montpelier High School and the Vermont Department of Agriculture received conflicting test results on carpet that was tested by private laboratories, I requested that the National Institute of Occupational Safety and Health (NIOSH) carry out a health hazard evaluation at the two sites.

The NIOSH evaluation was done in March and the reports published in August 1992. The results were again inconclusive. Once again, there was no clear indication on whether the carpets should or should not be removed.

It has been over two years since I began to work with Vermonters on carpet related health problems, and the EPA appears to be no closer to answering our concerns. The safety of the air we breathe in our homes, at work and in our schools has been brought into question. We cannot afford to leave these questions unanswered.

Mr. Chairman, Linda Sands and her family have suffered. They have been forced to leave their home and build a chemical free house in the hope that their children will recover their health. They are permanently sensitized to all kinds of chemicals in the environment including ordinary household cleaners, perfumes, and even chemical residues in clothing.

The constituents who have come to me know three things. They know they were healthy before they came into contact with new carpet, they know they became very sick after, and they know that the federal government has failed to protect them.

Vermont is not alone. Thousands of complaints from other states have made EPA aware of a potential link between carpet borne chemicals and severe health problems. Some of the complaints came from EPA's own employees who became ill after their offices at Waterside Mall were newly carpeted in 1988. Sixty employees suffered health problems and at least

twenty are still unable to work in that building. Yet, the EPA continues to maintain there is no scientific evidence that these chemicals could cause health problems.

Mr. Chairman, again, I thank you for holding this hearing. I hope that the testimony heard today will help to bring about a conclusive solution to this problem.

JOSEPH P. KENNEDY II  
6th DISTRICT, MASSACHUSETTS

COMMITTEE ON BANKING,  
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## Congress of the United States

### House of Representatives

**Washington, DC 20515-2108**

CONGRESSMAN JOSEPH P. KENNEDY II

STATEMENT BEFORE THE

SUBCOMMITTEE ON ENVIRONMENT, ENERGY, AND NATURAL RESOURCES

COMMITTEE ON GOVERNMENT OPERATIONS

JUNE 11, 1993

First of all, I would like to thank Chairman Mike Synar, Congressman Bernard Sanders, and the other distinguished members of the Subcommittee for calling this hearing on the possible health risks of carpets and carpeting materials. I am pleased to have the opportunity to submit testimony pertaining to indoor air quality and legislation I have introduced which calls for public information and better research to find intelligent solutions to indoor air pollution.

Carpet emissions are an integral component of our overall indoor air quality. I commend Dr. Rosalind Anderson of Anderson Laboratories in Dedham, Massachusetts, for her diligent research efforts to uncover health effects of "complaint carpets." I share the Subcommittee's concerns on indoor air contamination, and have been working on this issue since the 100th Congress. My legislation, the Indoor Air Quality Act of 1993, sets out to meet our responsibility to protect and inform Americans of unseen dangers in the air we breathe everyday, including the volatile organic compounds found in new carpeting.

Mr. Chairman, our right to breathe clean air should not end the moment we walk indoors. Yet, 9 out of 10 Americans are inhaling indoor air contaminants that have been identified by the EPA and the scientific community as serious health risks.

Long-term health effects, including respiratory diseases and cancer, can be debilitating or even fatal. These contaminants may cause as many as 20,000 radon-related deaths in addition to 6,000 deaths from cancer each year. In addition, inhalation of contaminants accounts for hundreds of thousands of complaints of immediate effects which may include: asthma, bronchitis, headaches, fatigue, dizziness, and nausea. Of the calls to the National Institute of Occupational Safety and Health's (NIOSH) complaint hotline, more calls were received about indoor air -- 1,710 to be specific -- than all other work environment complaints combined. Since Americans spend 90% of their time indoors, indoor air problems present a major environmental public health threat.

The human health toll is significant. In fact, EPA and its independent Science Advisory Board have consistently ranked indoor air pollution as one of the top five environmental risks to health, ahead of hazardous waste and outdoor air pollution.

But, these are not the only costs to society. The costs are also economic. In its 1989 Report to Congress, EPA estimated that indoor air pollution costs tens of billions per year in direct medical costs; lost worker productivity; decreased efficiency while on the job; and equipment damages due to indoor contaminant exposure. In a service economy, the single largest components of expenditures are salaries and benefits. The costs to American businesses cannot be tolerated.

The Indoor Air Quality Act of 1993 will improve our knowledge about the causes and effects of the indoor air pollution. EPA will establish a coordinated and comprehensive federal research, development, and demonstration program to shore up our knowledge on indoor air contaminants to improve air quality. It calls for the assessment of the sources of contaminants and their effect on human health, and the development of methods to reduce exposure to indoor air contaminants.

It also requires a national assessment of schools and child care facilities to determine the seriousness and scope of indoor air problems. More and more we are coming to realize the extent to which schools are plagued with indoor air problems. In fact, concerned teachers and parents of students from the Cambridge Rindge and Latin High School in my district initially brought this issue to my attention.

Central to the bill are provisions for the development of management practices to address indoor air contaminants and the publication of health advisories. The health advisories will provide the public with practical information about the risks of certain indoor air pollutants including the levels that require action.

EPA together with other federal agencies will also design and implement a national indoor air quality response strategy to indoor air quality problems. It will include information dissemination programs, educational programs, and options (both private and public sector) for providing technical assistance. An Indoor Air Quality Clearinghouse will be established, featuring a toll-free telephone hotline so that concerned individuals have place to turn when they have problems or questions.

The Indoor Air Quality Act of 1993 has widespread support and is backed by groups such as the American Lung Association, the Consumer Federation of America, the AFL-CIO, and the National Parent Teachers' Association (PTA).

The time has come for indoor air quality legislation. Waiting costs money. Waiting takes a toll on public health and the economy. We simply cannot afford to wait any longer to confront such a serious health menace.

Again, I want to thank the Subcommittee for bringing this issue forward. I believe that today's testimony will reinforce the need to act expeditiously to address indoor air pollution. I look forward to working with members of the Subcommittee toward that goal.

Mr. SYNAR. Nathan, welcome.

**STATEMENT OF HON. NATHAN DEAL, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF GEORGIA**

Mr. DEAL. Thank you, Mr. Chairman.

I want to thank you and the members of the subcommittee for allowing me to testify before you today.

Every year, the American carpet industry manufactures 1.3 billion square yards of carpet and employs more than 1 million people. My congressional district is the home of the largest concentration of carpet manufacturers in the world. Although the action of this subcommittee could have a very serious impact upon an industry that is vital to my district and to my State, I do not appear here as a parochial protector. Instead, I come to ask you to give fair treatment to an industry and a work force who have demonstrated a concern for the health of their customers and the public, an industry which has worked hard to produce a quality product, but an industry which has become the victim of inconclusive and unsubstantiated allegations which undermine the trust and the confidence of the public in their product.

As I reviewed the news release issued by this committee relating to the purpose of this hearing, it stated that it would review the progress of EPA in identifying and controlling possible risks from carpets and their attempts to replicate the test methods of Anderson Laboratories.

I understand the jurisdiction of this subcommittee of the Government Operations Committee, authorizes you to call the EPA on the carpet, pun intended, but in doing so, I urge you to seriously question the premises upon which the inquiry is founded. Just as it is often difficult or impossible to disprove a negative or to repudiate a rumor unfounded on fact, so is it difficult or impossible in the scientific arena to replicate an experiment which departs from accepted protocol and is riddled with unexplained variables which make validation unattainable.

Although I am not a scientist, I, like you, have read much of the scientific data associated with this issue. Even though some issues are in dispute, one thing appears clear, the scientific data upon which the complaints must ultimately be based are defective as measured by most accepted scientific standards.

Do you feel comfortable with the fact that the Anderson test results were disseminated by press releases rather than in scientific journals after appropriate peer review by fellow scientists in the field? Is your sense of fairness and objectivity somewhat offended by the fact that the same laboratory which points the finger at carpets has also reported similar results for mattresses, telephone cords, and earplugs, but only carpets are the subject of the inquiry?

I urge this subcommittee to insist that there be competent scientific evidence upon which its recommendations be based. Otherwise, your actions will only serve to enhance the feeding frenzy of the plaintiff lawyers who are circling this hearing room right now.

Good laws on indoor air quality must be based on good science. It must also be based on a comprehensive analysis of all materials which contribute to the quality of indoor air many of which—such

as finished wood, paint, wall coverings, and adhesives—all release more chemicals into the air than does carpet.

Medical and scientific investigators face many mysteries in attempting to understand and unravel the causes of human illness. If we are truly interested in solving these mysteries, we must furnish the scientists with the funds and the tools to do so. We do not aid them in their quest by legislatively establishing the parameters within which their inquiry should be focused.

By predetermining the scope of their studies, we defile the scientific process of research, just as surely as did the authorities of the 15th century who thwarted the efforts of Christopher Columbus for fear he would disprove their preconceived opinions about the topography of the world.

If your direction to EPA or any other government agency is to prove that carpets and carpets alone are the cause of indoor air problems, then you have condemned them to live in a Ptolemaic universe which is an insult to the scientific community and a disservice to the public.

I commend you and join with you in your efforts to make our indoor environments safer. But in doing so, I urge you not to seek a scapegoat to sacrifice on the altar of public complaint. Allow the EPA or the National Academy of Sciences to pursue their inquiry in a logical and scientific manner.

I have the assurances of the carpet industry executives that they will cooperate in this endeavor, just as they have cooperated in the past. Theirs is an industry which has demonstrated its responsibility in improving its product and in instituting self-monitoring programs, some of which are being criticized here today. We must not allow an industry which has achieved success through applying American ingenuity and hard work to be destroyed or seriously crippled without competent and reliable scientific data.

Political rhetoric and posturing serves no useful purpose. Let us all work together to improve indoor air quality in a constructive and progressive manner.

Again, Mr. Chairman, I thank you and the members of the subcommittee for allowing me to appear before you today.

Mr. SYNAR. Thank you, Nathan, and I do appreciate your attending this morning. I know how vital this is not only to your district, but to the country and we appreciate your comments.

Mr. DEAL. Thank you.

[The prepared statement of Mr. Deal follows:]

STATEMENT OF  
NATHAN DEAL  
CONGRESSMAN, 9TH DISTRICT, GEORGIA  
BEFORE THE  
SUBCOMMITTEE ON ENVIRONMENT, ENERGY  
AND NATURAL RESOURCES  
OF THE  
HOUSE COMMITTEE ON GOVERNMENT OPERATIONS

JUNE 11, 1993

I want to thank the Chairman and the Subcommittee Chairman for allowing me to address you today.

Every year, the American carpet industry manufactures 1.3 billion square yards of carpet and employs more than one million people. My Congressional District is the home of the largest concentration of carpet manufacturers in the world. Although the action of this subcommittee could have a serious impact upon an industry that is vital to my District and my State, I do not appear here as a parochial protector. Instead, I come to ask you to give fair treatment to an industry and a workforce who have demonstrated a concern for the health of their customers and the public, an industry which has worked hard to produce a quality product, but an industry which has become the victim of inconclusive and unsubstantiated allegations which undermine the trust and confidence of the public in their product.

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Again, I thank the Chairman and the members of this Subcommittee for allowing me to appear before you today.

Mr. SYNAR. Our first panel this morning will be Rosalind Anderson, Ph.D., Anderson Laboratories; Yves Alarie, Ph.D., professor of toxicology, University of Pittsburgh; and Victor Kimm, Assistant Administrator of Prevention, Pesticides and Toxic Substances, EPA.

If the three of you would all come forward. It is the policy of the subcommittee in order not to prejudice past or future witnesses that we swear in all our witnesses.

Do any of you have any objection to being sworn? Anyone with EPA who may be called upon to testify, please stand at this time and take the same oath.

[Witnesses sworn.]

Mr. SYNAR. Welcome. We will admit into the record your written testimony of each one of you. At this time we would ask you all to summarize. Let us begin with you, Dr. Anderson.

Welcome this morning.

#### **STATEMENT OF ROSALIND C. ANDERSON, PH.D., ANDERSON LABORATORIES, INC.**

Dr. ANDERSON. Thank you very much and good morning.

In the past year at Anderson Laboratories, we have been studying carpets intensively to determine whether there is a possibility of health effects associated with the off-gassing of those products. We have looked at approximately 300 samples by now.

Contrary to what you may have heard, we are not into voodoo science. We are using standard textbook methods of toxicology. We are doing at least one control experiment every week, generally 2, sometimes as many as five control experiments each week.

We use the classical approach of obtaining low dose response curves to demonstrate the relationship between the quantity of material or the intensity of the exposure, and the animal response, and we have done this very successfully. Our method is basically very simple.

If we can put up one of the posters, I can show you what it is.

Mr. SYNAR. I will ask staff to assist in that.

Dr. ANDERSON. While it is coming, I will tell you that what we will be doing is taking a sample of carpet which we wish to test. We put that sample in the box called sample chamber, which is a glass aquarium. We pull air through that sample aquarium and deliver the air to a group of animals in the animal exposure chamber. Then we are simply pulling air past a carpet sample to a group of animals which will breathe that air for 1 hour.

We may repeat that exposure for up to four 1-hour periods. The effect we get is anywhere between nothing and a very strong effect, including neurotoxicity and death. The animals are observed before, during and after every exposure so that we have a continuing evaluation of their current health status. The effects that we are getting are remarkably discouraging, in that half of the samples we have tested cause irritant responses in animals indicating that there are toxic irritant chemicals in the exposure atmosphere.

Far more than half of the samples we have tested also show signs of neurotoxic agents being present. These neurotoxic agents may be somewhat moderate when we are lucky. The agents may be very, very potent and very severe in other cases.

Death from toxicity is quite common in these studies. When we first started doing this work, we used a fairly large sample size. We were looking at 3 square feet of carpet. In the past few weeks, we have finished a test in which we looked at room temperature with a carpet sample 2 inches by 3½. At room temperature that carpet sample killed two animals in this system.

As far as replication of this work is going, Dr. Yves Alarie will tell you about the work he has been doing at the University of Pittsburgh and he has been having fairly good success replicating our work. The EPA replicated our work with perfect success when they came to our laboratory in January. The EPA has had only partial success in replicating our work at Research Triangle Park.

The part of the work which they replicate well now is the irritant component of the effect. The part of the work which they have not been finding is the neurotoxic effect.

We have recently found a very important clue as to the reason why the neurotoxic effect has not been showing up at the EPA. We have discovered when there is water in any part of the test system, the neurotoxic effect does not appear.

The animals are entirely protected. What we have found is that if we put water into the system, either as humid air or as a damp or humified test sample, the animals are fat and happy at the end of the experiment.

We are able to hypothesize that we are looking at a water soluble chemical which does not travel in the air stream in the presence of water. This is very important for carpets in particular, because carpets can pick up a great deal of water as they sit in a humid atmosphere such as we have here, such as we have in many laboratories, certainly such as the carpets pass through on their way to a test laboratory.

In order to test the hypothesis that this is a water soluble chemical and that the water traps the nasty water that we are looking at, we have run an experiment in which we take air from an unpleasant test atmosphere generated by a carpet that we have tested, we pull that air through a water trap, and then in a separate experiment we aerosolize that water and expose animals to the water in vapor form.

Having done that, we observe the animals and find that one animal has died, one animal is comatose, and two animals are remarkably healthy.

What we believe is that we are working with a chemical which is going to be very responsive to the quantity of water in the system and until we have found a way to standardize the humidity of the systems we are working with, and we had not done this previously, we will not have reproducible data from a variety of different labs where the atmospheric conditions differ greatly.

Thank you.

Mr. SYNAR. Thank you, Dr. Anderson.

[The prepared statement of Dr. Anderson follows:]

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**INC. EFFECTS OF SMOKES AND OFFGASING**

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**Testimony To: Subcommittee on Environment, Energy  
and Natural Resources,  
House Of Representatives  
Committee on Government Operations**

**Date:** June 11 1993

**From:** Rosalind C Anderson , Ph.D.

At Anderson laboratories we have been studying indoor air pollution to determine possible health effects for occupants. As a corollary we are interested in the contributions to the indoor air made by product emissions. Carpets have been long accused of causing health effects as a result of offgassing so we included them on the list of products for evaluation.

**Test Samples**

Over the course of a year we have studied approximately 300 carpets, some directly from mills and carpet retail stores, some from homes, cars, business offices, and public buildings. The oldest carpets which we have tested have been in use for more than 10 years; the newest remain unused. Consumers send many of these samples along with reports of health problems. The sample size is typically 10 X 20 inches. The smallest sample tested is 1X 0.5 inches, the largest 108 X 12 inches.

**Exposure**

Animals are exposed to the test atmosphere by the respiratory route. An air stream of 3.5 to 7 liters/ minute sweeps emissions from the sample chamber to the animal exposure chamber. The system is open. On day one of the test, animals restrained in an immediately adjacent chamber breathe the test atmosphere for a period of one hour. Before, during and after the exposures animals are evaluated for general health and respiratory performance. After a two hour rest and recovery period there is a second one hour exposure. This series may be repeated on day two. The maximum exposure is 4 one hour sessions.

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**Methods**

The effects of product emissions have been studied using three animal evaluation procedures. For some experiments all three end points are employed in sequence. Using the first test, ASTM E 981, we record and interpret the respiratory performance of each test animal before, during and after each exposure. Defined changes of rate and pattern allow the detection of irritant chemicals in the test atmosphere. This test is used throughout the world for evaluation of irritant airborne emissions of commercial products. Data from the ASTM test have been accepted by the U.S.EPA and FDA in support of product registration.

The U.S. EPA provided the techniques for the second test, the Functional Observational Battery (FOB). We use this animal observation format following a 15 minute home cage recovery interval. Any unusual animal appearance or behavior is recorded on video tape. Data from the FOB are requested by EPA in support of registration for certain products.

The final endpoint is death. Although the result is more than obvious it can be assessed using the UPITT Test as a model. This test is designed to evaluate the toxic potencies of unknown mixtures of air borne chemicals using death as an endpoint. The cause of death is not defined. The State of New York and the City of New York have adopted the UPITT test as a requirement for registration of certain products.

**Findings**

Approximately one half of the carpets tested released irritant chemicals which affect either the upper or lower respiratory tract. By testing samples of different sizes we have obtained classical log dose response curves for the sensory irritation and the pulmonary irritation responses. This relationship demonstrates that the response being measured is determined by the level of exposure as described by square inches of carpet. If the effect being measured is determined by the test conditions rather than the test sample, no log dose response curve is obtained. Humans exposed to irritant chemicals report eye nose, throat irritation, sinus problems, difficulty breathing, fatigue and headaches.

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With high frequency, carpets tested resulted in acute neurological effects in the exposed animals. The effects were sometimes severe, for example loss of righting reflex, disorientation orientation, inability to walk, absence of voluntary activity, hypersensitivity to external stimuli, bizarre behavior such as circling continuously. By testing samples of different sizes or for different time periods we have obtained classical log dose response curves for the neurological effects score. This relationship demonstrates that the response being measured is determined by the level of exposure. If the effect being measured is determined by the test conditions rather than the test sample, no log dose response curve is obtained.

**Control Experiments**

Multiple control experiments have been conducted, one or two each week is common. For example:

Experiments with no test sample are performed at intervals to evaluate the effect of the total exposure system on the test animals.

Experiments have been conducted with unrestrained animals in order to answer the questions concerning the impact of restraint. We cannot collect data pertinent to the irritant chemicals under these conditions. Even so, a log dose response curve for the neurological effects was obtained indicating that restraint is not a critical component of the system.

Experiments have been conducted with all components of the system at room temperature to determine the contribution of the heated sample chamber. The results indicate that the effect is not dependent heating of the sample. By contrast unusually high potency was noted from the sample tested under these lower temperature conditions.

Adverse biological effects have been elicited from:

Restrained and unrestrained animals

Single and multiple exposure of animals.

New and old carpets

Samples as small as 4 square inches

Room temperature and heated carpets

**Room Model**

Using a mathematical model published by Myers and Nagaoka in the early 1980s (Forest Products Journal) we are able

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to compare the test system to a room, or to model for the testing the relationships between the volume, ventilation, temperature and surface area of a carpet sample. When we use the sample of 10 X 20 inches in the 40 liter glass chamber, at room temperature, with air flow of 7 liters /minute the relationships are consistent with a room 10X12X 8 , the floor covered by carpet and 0.5 to 1 air changes/hour. A new carpet sample was tested in this system and caused lethal effects. The sample size was reduced to 3.5 X 2 inches and still resulted in death of two animals.

**Protection from Toxicity**

The newest findings indicate that the test mice are protected from the neurotoxic effect, but not the irritant effect, by any procedure which introduces water into the test system prior to the animal exposure chamber. The water may be introduced as humidified air as in the EPA test system. A more important and more difficult problem results from the tendency of carpet to absorb and hold moisture as a result of weather conditions, or water application or spills. Samples may be visibly wet when they arrive in the laboratory, or may simply absorb moisture at some time before testing especially during humid weather. The high water content of some samples (assumed, before testing, to have been dry) is demonstrated by presence of water condensation inside the test system at the conclusion of an experiment. The EPA has observed the irritant effect in an experiment where the sample chamber contained so much water condensate that they described it as a "rain forest".

If water is introduced by bubbling the test atmosphere through a saline trap between the sample chamber and the animal exposure chamber the animals are entirely protected from the neurological effects of a previously defined toxic atmosphere.

A different group of animals exposed to the saline from that trap in a separate experiment, show severe effects including death as a result of one exposure. The very important conclusion is that a part of the problem seems to be mediated through a water soluble chemical. This explains much of the difficulty in conducting replicate experiments in which humidity of both the sample and the air have been uncontrolled variables.

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The other helpful contribution of this new water solubility data is that it will allow the chemists of focus on a specific type of active agent as contrasted with a universe of possibilities.

**Conclusion**

Experimental tests provide evidence of toxic chemicals in emissions of many carpets. The effect does not appear to be related to age or use of carpet. The work has been repeated by several groups. The EPA team has been entirely successful while working at Dedham, only partially successful at RTP.

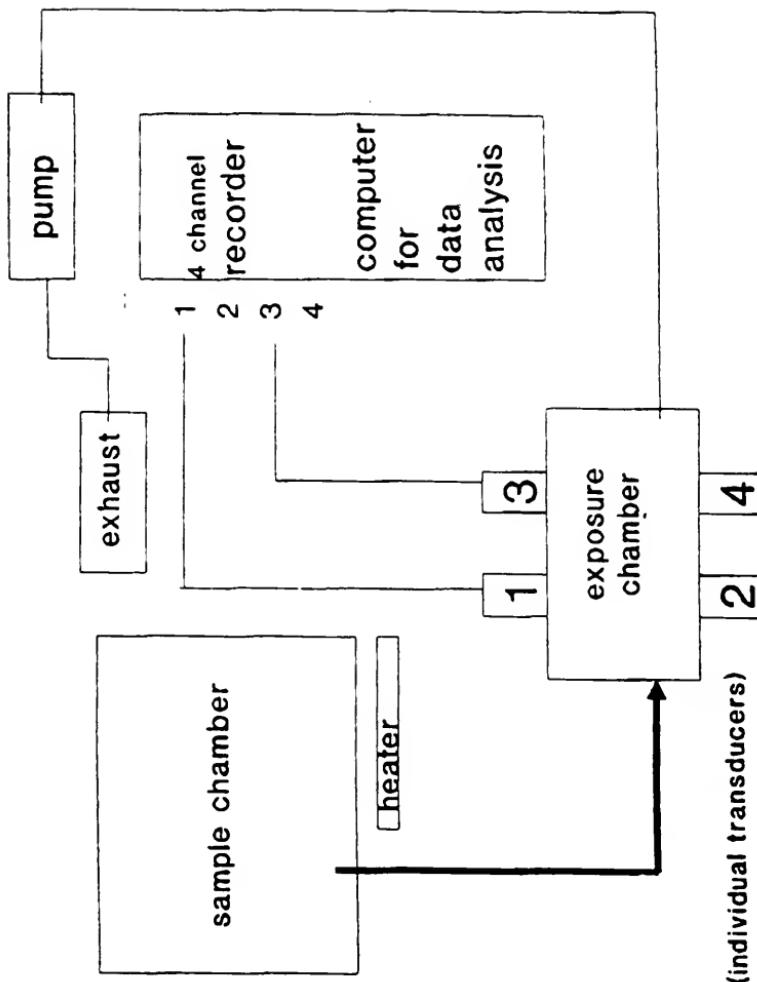
Recent experiments provide a new clue to some of the problems with testing carpet samples in parallel studies or testing at the same site. Water in any part of the test system protects the animals from the neuro toxic effect but not the irritant effect. The humidity of the air and dampness of the test sample are variables in the comparative studies which appear to be of great importance. Until this can be standardized, studies intended to be replicated may continue to be quite dissimilar. Knowing that we are working with a water soluble chemical will help us to standardize experiments in different laboratories and to focus the chemical analyses of the system.

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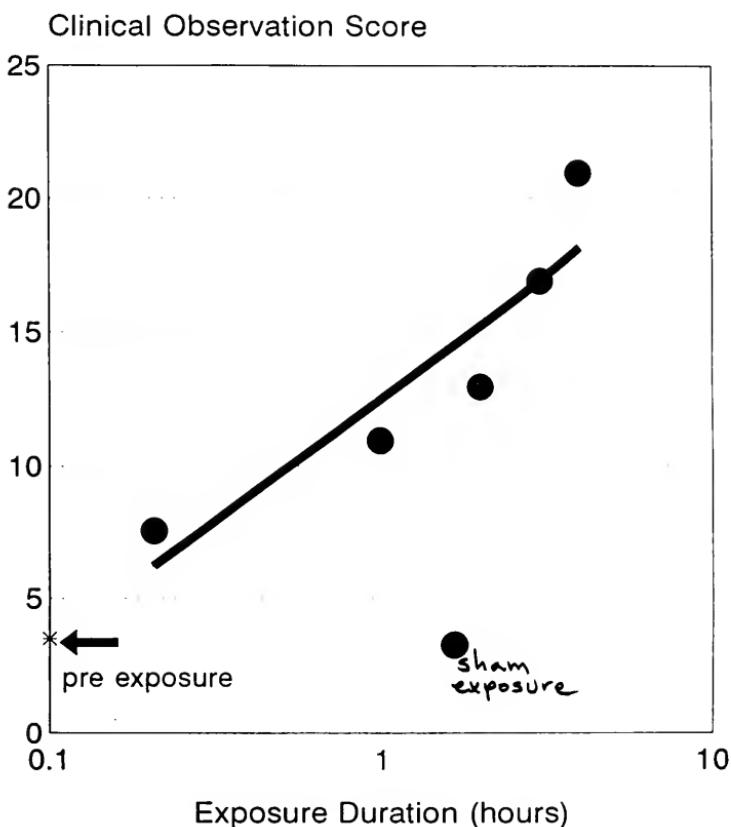
# FIGURES

## Test System For Samples



# Unrestrained mice

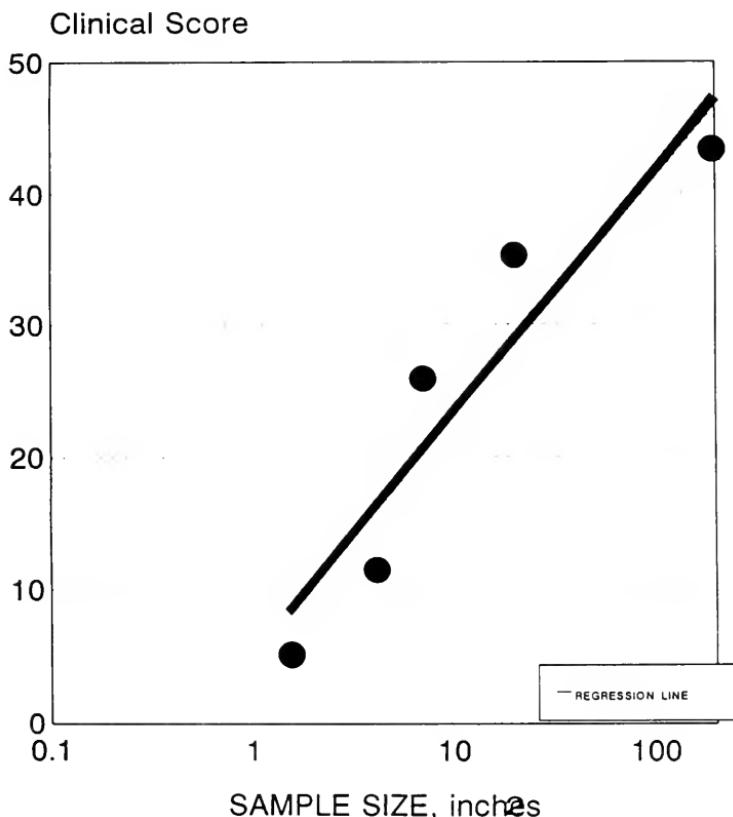
## Clinical Observation Score vs Exposure Time



old gray

sample at room temperature

# Clinical Observations vs Sample Size

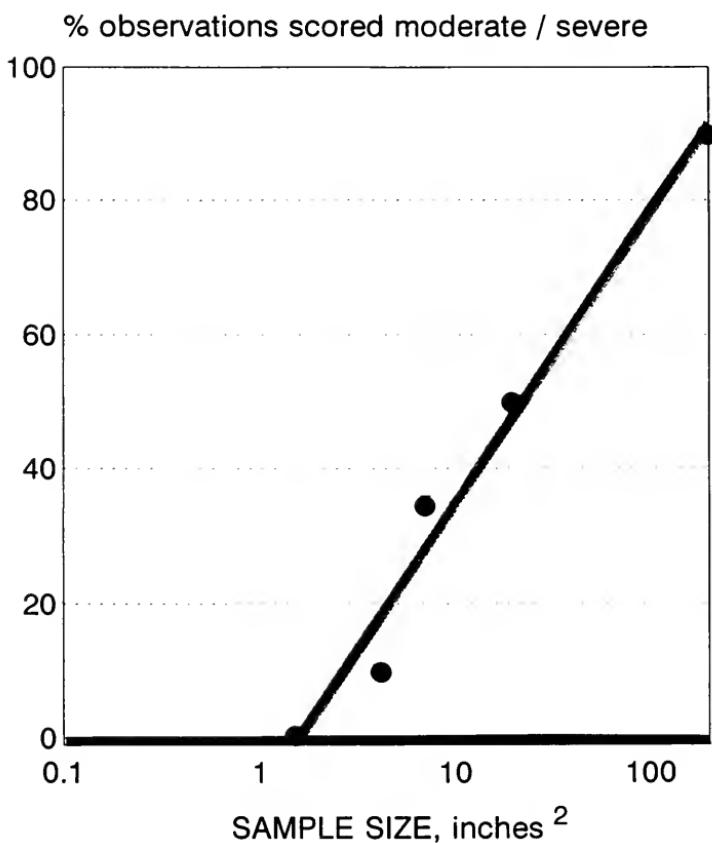


cold gray.

Sample at room temperature

73-997 25

# PULMONARY IRRITATION SCORE vs Sample Size



cold gray sample at room temperature

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**Report of Studies**

**Carpet Sample provided by  
Subcommittee on Environment, Energy,  
and Natural Resources**

**Hearing June 11, 1993**

**Anderson  
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(617) 364-7357

June 9, 1993

REPORT ON CARPET SUBMITTED BY SUBCOMMITTEE

The congressional subcommittee asked us to test a carpet sample provided by them to determine whether it emitted toxic substances in measurable amounts. A number of experiments were performed as documented in the enclosures.

In summary:

1. When a 10 inch by 20 inch sample was heated in our glass chamber, it emitted toxins which were detected in three ways:
  - A. ASTM E 981 demonstrated severe sensory irritation and some pulmonary irritation
  - B. Observation of neurological behavior showed presence of severe neurotoxin effects
  - C. One of the four animals died within 3 days.
2. In room temperature experiments only the neurotoxin effect was detectable.
3. Some of the toxins could be trapped by bubbling the emissions through a saline solution; when this saline was subsequently aerosolized, animals showed severe neurological effects and one died. Control experiments with saline alone resulted in no effects in ASTM tests or neurological observations.

# Carpet provided by Subcommittee

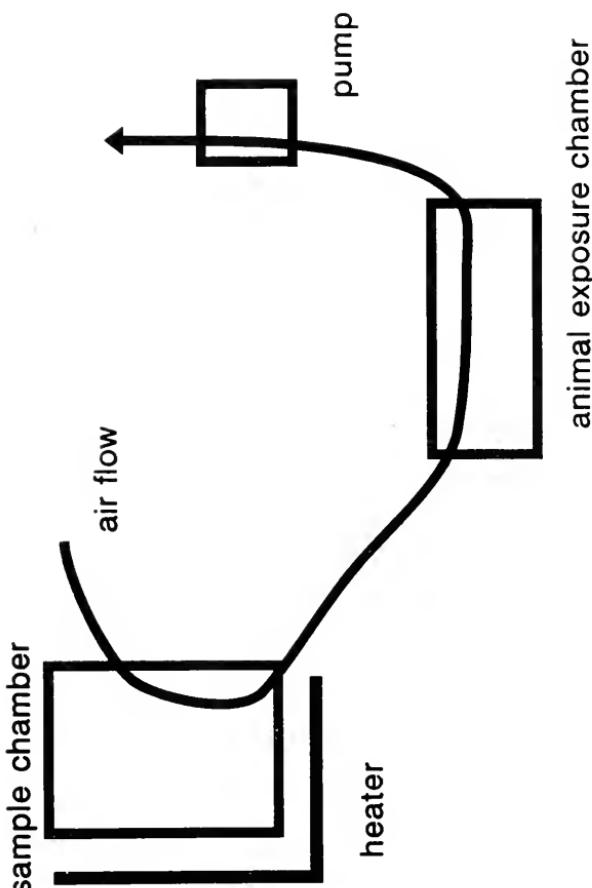
Hearing, June 11, 1993  
Carpet Heated for Testing

Effect	face fiber 72C backing 48C	moderate /severe	present	severe	1, day 3	20 X 10 inches of carpet 4 one hour exposures of animals, System 2 Anderson Laboratories, Inc., 617 364 7357
sensory irritation						
pulmonary irritation						
neurological						
death						

# Experimental System 2

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40



Anderson Laboratories, Inc.

animal exposure chamber

**Carpet Provided by Subcommittee**  
**Hearing, June 11, 1993**  
**Room Temperature Testing**

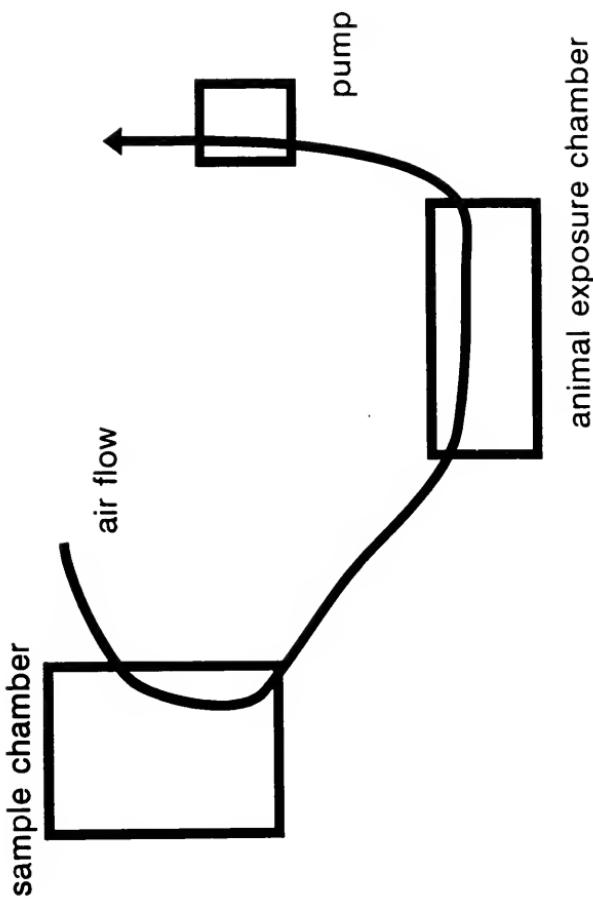
Effect	room temperature (22-23C)
sensory irritation	none
pulmonary irritation	none
neurological	moderate
death	none

20 X 10 inches of carpet  
4 one hour exposures of animals, System 1  
Anderson Laboratories, Inc., 617 364 7357

# Experimental System 1

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42



Anderson Laboratories, Inc.

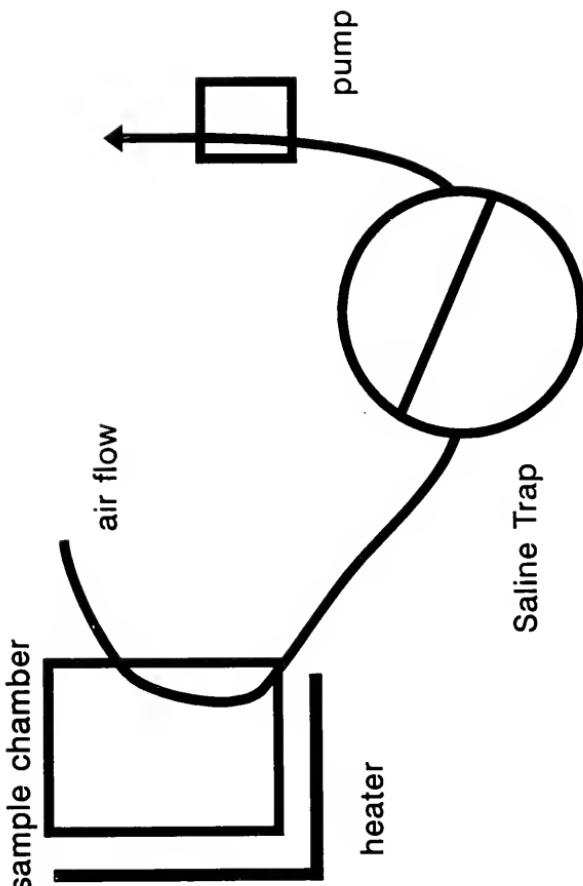
Carpet Provided by Subcommittee  
**Animals Exposed to Carpet Emissions**  
Collected in Saline

Effect	carpet/saline	saline control
sensory irritation	none	none
pulmonary irritation	none	none
neurological effect	severe	none
death	1, following exposure 1	none

Pitt #1 Nebulizer  
2 one hour exposures of animals, System 3  
Anderson Laboratories, Inc. 617, 364 7357

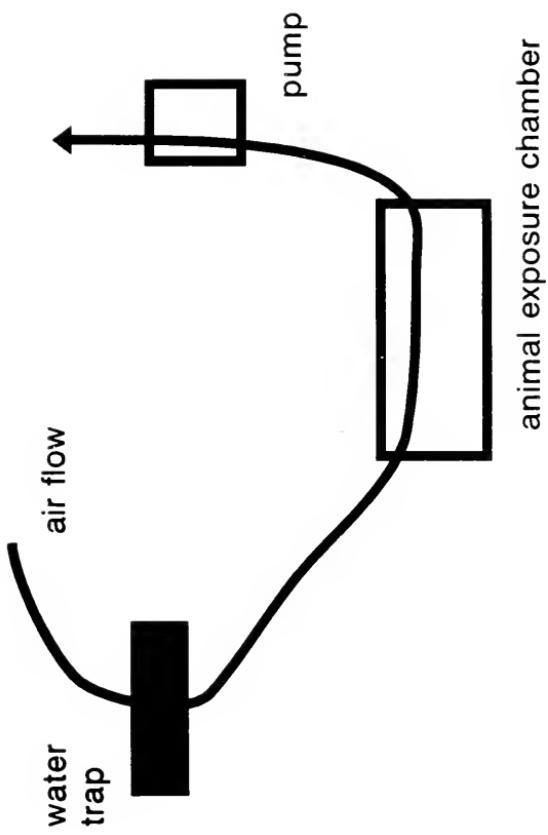
# Experimental System 3 A

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Anderson Laboratories, Inc.

# Experimental System 3 B



Anderson Laboratories, Inc.

Mr. SYNAR. Dr. Alarie.

**STATEMENT OF YVES ALARIE, Ph.D., PROFESSOR OF PHYSIOLOGY AND TOXICOLOGY, UNIVERSITY OF PITTSBURGH**

Dr. ALARIE. Mr. Chairman, members of the subcommittee, I think I can best summarize my prepared statement by looking at page 11, which you have. There is a table there and I think I can talk from there.

What I have tried to find at the University of Pittsburgh is whether or not the finding from Dr. Anderson could be reproduced in my own laboratories. I first tested carpets A and B which are not on this table. These two carpet provided no neurotoxic effect whatsoever.

After testing those two carpets, since I had no findings, I called Dr. Anderson and it is, I think, a classical way of approaching things if you have a negative result in a bioassay, basically you can't say anything. You have to prove that you can indeed obtain a positive. The only possible way I could do that was to ask her to supply me with a piece of carpet that she had tested that was positive. And this is what you see there, the carpet called Z carpet.

In her laboratory, this had produced neurotoxicity and death and it really had produced only minor either sensory or pulmonary irritation. When I tested this carpet using her system, I found the same thing. I found neurotoxicity and death and I found only minor sensory or pulmonary irritation.

Now I did that four times with that sample of carpet using her system. So as far as I am concerned, her results with this carpet are perfectly reproducible in my laboratory. As I moved along, I used the same system as she used. The only thing I did is I changed the way of controlling the temperature where you put the sample. And there I could maintain the carpet at very fixed temperatures so I used 37 degree centigrade, 54 degree centigrade, and 70 degree centigrade.

When I used 37 degree centigrade, I saw nothing happening. Fifty-four, I am not sure because of technical problem. But I can always do it again. Seventy degree centigrade produced very severe effects after a single 1 hour of exposure. These mice were very severely affected. We took a videotape of this and I asked other people in my laboratories to come and look at this.

I am not a neurotoxicologist and when I report neurotoxicity, for me it has to be very gross effect on the animal, that anyone here in this room would observe. So as far as I am concerned, there is something peculiar about this carpet.

Then we tested carpets C and D. These were shipped to both of us by the Carpet and Rug Institute and neither Dr. Anderson nor I could find neurotoxicity or death with these two carpets.

Both of us found minor sensory or pulmonary irritation. Afterward, I tested carpet AT#3 that you see there, and so did Dr. Anderson. And again this was shipped to us by the Carpet and Rug Institute, and my understanding is that other laboratories also have received this carpet.

With this, I find no neurotoxicity, no death. Certainly there is very good sensory and pulmonary irritation coming from this carpet. And she basically matches my results.

Now on about June 2, I received a letter from Mr. Synar, the chairman of this subcommittee, asking me if I would test carpet Y, which you see on this table. This carpet was evaluated by both Dr. Anderson and by the EPA.

It is my understanding that it was supplied to both laboratories by CPSC. And as you see on this table here, Dr. Anderson found neurotoxicity and death. She also found visible sensory irritation and definite pulmonary irritation.

EPA, I did not put down on the table because when I prepared it on Monday I didn't have any data from them. They called me on Tuesday—Dr. Tepper, an EPA contractor—and they informed me that they saw absolutely nothing. You see my results there.

I also found nothing. I found basically nothing. If there is any sensory irritation there, it is very, very, very slight, if any.

There was a brief period of pulmonary irritation, but this is on one animal and it has, you know, lasted 7 seconds or something like that. So it has a very, very minor effect.

Certainly I found no neurotoxicity and no deaths. This is using, again, the Anderson system. After using these three pieces of carpet in the other system, I have put them in my system and raised the temperature to 70 degree and today will be the fifth day that we are evaluating this carpet. We haven't seen any neurotoxicity or death yet.

So for this carpet, my results match those of EPA and are opposite of what Dr. Anderson found. For the Z carpet, my result matches her result, and I was told by EPA on Tuesday morning that when they tested this same carpet at Anderson Laboratories, they also obtained neurotoxicity and deaths.

So there is something peculiar about this particular carpet and certainly as far as I am concerned the results are very reproducible.

Thank you.

Mr. SYNAR. Thank you, Dr. Alarie.

[The prepared statement of Dr. Alarie follows:]



University of Pittsburgh

TO: Subcommittee on Environment, Energy and  
Natural Resources. House of Representatives, Committee  
on Government Operations

FROM: Yves Alarie, Ph.D.  
Professor

DATE: June 11, 1993

SUBJECT: Subcommittee Hearing on Potential Health Risks from  
Carpets and Carpet Systems Materials

I. Introduction

I became involved in this issue of potential health risks from volatile chemical emissions from carpets in August of 1992. On August 21, 1992, I received a phone call from Mr. McIntosh and Mr. VanGelderan of the Carpet and Rug Institute (CRI). They informed me that Dr. R. C. Anderson of Anderson Laboratories, Inc., Dedham, MA reported that toxicological effects in mice were obtained when these animals were exposed to volatile emissions from carpets. Her results showed four different types of effects:

- sensory irritation
- pulmonary irritation
- neurotoxicity
- death

They asked me to verify her results by setting up the same systems in my laboratory. I agreed and called Dr. Anderson, who invited me to visit her laboratory on August 24. Laboratory studies were then initiated in my laboratory on August 28.

It should be made clear here that I have worked before with CRI and have been a consultant to CRI on other issues concerning carpets and that I would consider both Mr. McIntosh and Mr. VanGelderan as friends. Also, Dr. Anderson worked in my laboratory at the University of Pittsburgh in the late seventies and I have worked with her on many projects since then. I certainly consider her a good friend.

From August 28 until now, I have prepared three reports with the collaboration of Mrs. M. F. Stock who has worked with me in my laboratory for many years. These reports are listed at the end of this document and are the basis for my testimony here today. They represent the basic work undertaken at the request of CRI as well as work I did independently on this subject. My summary presented below does not include all the details in these reports but I believe that these reports will fully support my general presentation.

#### II. Reproducibility of the Results Obtained

by DR. R. C. Anderson

##### A. Visit to Anderson Laboratories.

The first report covers this topic fully. Upon my visit to Dr. Anderson's laboratory I found nothing wrong with the exposure system for the animals (mice) or for holding carpets at elevated

temperature (37°C or 98°F) in a glass aquarium. First, the exposure system she used is a standard ASTM method<sup>1</sup> and Dr. Anderson has years of experience using it. The method was developed in my laboratory and although she made some modifications to it I did not see anything wrong. Second, the system used to generate volatile emissions from carpets is simply an all glass aquarium into which carpet samples are loaded. Heat is applied to speed up volatilization. We have used a glass aquarium in my laboratory for over 20 years and I saw nothing wrong with her using such a system. As will be given below I realized later that although there was nothing wrong in the way she used the aquarium there was something wrong in the way she described the conditions under which the carpets were tested (this will be discussed below). While in her laboratory I also observed mice with very severe neurotoxic effects from exposure to volatile emissions from a carpet as well as very well defined pulmonary irritation effects. I returned to Pittsburgh convinced that her description of the effects observed was correct and that her experimental design was valid. I informed CRI of my conclusions and they asked me to pursue this with my own experiments as quickly as possible. They informed me that two carpet samples (Carpets A and B) would be delivered within a few days.

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<sup>1</sup>Standard Test Method for Estimating Sensory Irritancy of Airborne Chemicals. ASTM Designation E981. American Society for Testing and Materials, Philadelphia, PA.

B. Investigations of Carpets A, B, C, D and Z (Report #1).

Upon returning to Pittsburgh a system similar to the one used by Dr. Anderson was built and evaluation of Carpets A and B (provided by CRI) was initiated after sham<sup>2</sup> exposure experiments. In essence, Carpets A and B produced some sensory irritation and/or pulmonary irritation but these were minimal in degree. No neurotoxic affect or death were observed. I therefore called Dr. Anderson and asked her to send me a carpet sample which had produced neurotoxic effects and death in her laboratory. She provided Carpet Z. When we evaluated Carpet Z no neurotoxicity or death occurred. Since we failed to reproduce her results we examined our system and her system. Two major differences were present and we can summarize them as follows:

- i) Anderson system: aquarium was heated with heating pads on top and bottom and insulation provided around it, carpets were placed on floor of the aquarium and the floor (i.e. glass) was much warmer than the air in the aquarium. Thus, when Dr. Anderson described the air temperature being 37°C or 98°F she was correct but since a portion of the carpet was sitting on the floor of the aquarium, this portion was at a higher temperature than the air temperature.

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<sup>2</sup>Sham exposure simply means that animals were exposed using the same system to expose animals to volatile emissions from carpets except that no carpet sample was loaded into the aquarium.

ii) UPitt System: aquarium was heated with strips (1" wide) of heating tape wrapped around four of the sides and no insulation was provided around the aquarium. In order to prevent heating of the carpet on the floor of the aquarium the carpet samples were elevated above it by placing glass bottles on the bottom. Thus the carpet samples were truly very close to the air temperature of 37°C. Since no insulation was provided and only four of the six sides of the aquarium were heated we could see condensation of some vapors (most of it probably water) on the two cooler sides, i.e. front and back. This was present only for the first exposure.

We therefore requested Dr. Anderson to provide us with all the items to duplicate her system as closely as possible. She did and upon re-evaluation of Carpet Z using her system we observed neurotoxic effects and death. We obtained these results twice with Carpet Z evaluated with her system. These results are so unusual, and the fact that we did not observe them, or anything even remotely similar, with the sham control or Carpets A, B or Z using the UPitt system, indicate that the way the carpet is heated in the Anderson system is different than with the UPitt system and that water vapor condensation may also be another factor. In order to resolve these issues a second series of experiments was undertaken.

C. Standardization of the System for Volatile Carpet Emissions (Report #2).

We devised another system (termed Alarie system to

differentiate it from the Anderson system and UPitt system noted above) so that the carpet samples would be held in the glass aquarium, not touching the floor or sitting on glass bottles. We simply built a glass rack to be inserted into the aquarium and suspended carpet samples on it. In this way the air temperature can be taken as the temperature at which the carpet samples are exposed. Also, we provided insulation all around the aquarium as in the Anderson system to prevent condensation. The objective of this series of experiments was simply to find out the temperature at which Carpet Z would produce neurotoxicity and death. The results can be summarized as follows:

- i) 37°C (98.6°F): too low to produce an effect.
- ii) 54°C (129.2°F): not sure.
- iii) 70°C (158°F): neurotoxicity after a single one hour exposure, death of one animal after the exposures.

Now we can see why with the UPitt system (Report #1) Carpet Z above the floor tested negative. The temperature was not high enough, and as obtained here with the Alaris system holding this sample at 37°C. At 70°C neurotoxic effects on all four animals after the first hour of exposure were worse than with the Anderson system. This is not unexpected. The Anderson system is a mixture of temperatures. Some portion of the carpets are on the floor (warmer than 37°C) and some portions are at 37°C. We made one measurement of temperature of the floor of the Anderson system, it was 54°C. This is probably not representative of the temperature at all times. It probably fluctuates above and below this.

However it cannot be below 37°C (the air temperature) or above 85°C because glass (ordinary window pane glass used for 10 gallon aquariums) will crack at 85°C or above. Therefore, we are satisfied that neurotoxic effects and death can be obtained with volatile emissions from Carpet Z. Not at 37°C as originally described by Dr. Anderson (i.e., the air temperature of the aquarium but not taking into account that a portion of the carpet was touching the floor of the aquarium which was at a higher temperature) but when using a temperature higher than this.

As a part of this series of experiments we also tested Carpet Z twice with the Anderson system and again obtained neurotoxic effects. Therefore Carpet Z produced similar effects four times with the Anderson system. It was negative once with the UPitt system (37°C), also negative with the Alarie system (37°C) and difficult to say if positive or negative using the Alarie system at 54°C.

Also a part of this series of experiments were sham control exposures. As results of neurotoxic effects and death were reported by Dr. Anderson to be due to volatile emissions from carpets, rumors were circulated that these effects were due to the exposure method, i.e., placing the mice in restraining tubes as described in the ASTM-E981 method. These rumors were started by individuals who have never worked with the method. We therefore conducted sham exposures again, using two groups of mice in order to satisfy those rumor generators. For one group sham exposures were conducted for 8 days and for the other group sham exposures

were conducted for 5 days. This is longer than the protocol used by Dr. Anderson or us with carpet samples, requiring only 2 days of exposure. For these two sham exposure experiments we observed no neurotoxicity and no death. As given below (Report #3) a third sham exposure was conducted resulting in no neurotoxicity and no death. We therefore now have four sham exposures done at different times, one in Report #1, two in Report #2 and one in Report #3 with no neurotoxicity and no death. Also exposures to Carpet A, B, C or D and AT#3 resulted in no neurotoxicity and no death and exposure to Carpet Z using the UPitt system or the Alarie system at 37°C resulted in no neurotoxicity and no death. Yet, using the Anderson system with Carpet Z or the Alarie system at 70°C with Carpet Z produced very clear and unmistakable neurotoxicity and death. Despite these results cretins will continue to spread their rumors and there is not much I can do about it. As far as I know, this method (ASTM E981) has been used all over the world and I have never received a complaint from a user of it that the method itself produces neurotoxic effects.

D. Evaluation of Carpet AT#3 (Report #3).

The Carpet and Rug Institute asked us to evaluate Carpet AT#3. This carpet has also been evaluated by other laboratories; Anderson Laboratories, DuPont and Monsanto. We evaluated this carpet using the Alaris system at 37, 62 and 70°C. No neurotoxicity or death was observed. Sensory and pulmonary irritation were observed at 37°C but these effects were minimal. At 62 and 70°C these effects were very well defined.

E. Significance of 70°C.

As we defined that a temperature higher than 37°C was needed and that we were using 70°C (158°F), rumors started to circulate that this temperature was charring the carpets. An organization, the American Industrial Hygiene Association (AIHA) issued a press release that their experts had determined that thermal decomposition products were responsible. This is simply not so. They conducted no study, they had no data and, in fact, no experts. A temperature of 70°C is what is used in a sauna and an egg cannot be cooked at this temperature. In separate experiments, Dr. Schaper, a colleague of mine at the University, independently determined that no irritating thermal decomposition products were emitted below 190°C when using Carpet Z. Thus, using 70°C simply speeds up volatilization of chemicals from the carpets and helps to obtain the effects quickly.

F. Carpet Y Using Anderson System (No Report Prepared Yet).

Last week, at the request of Mr. Sydar, the Chairman of this Subcommittee, we evaluated Carpet Y. This carpet was supplied by Dr. Anderson. As I understand it, this carpet was tested by Dr. Anderson and by EPA. I was told by Dr. Anderson and by a reporter from CNN that this carpet sample produced sensory irritation, pulmonary irritation, neurotoxicity and death when evaluated at Anderson Laboratories but produced none of these effects when evaluated at EPA. For evaluation of this carpet, we used the Anderson system, as we previously used when evaluating Carpet Z and as described in Report #1. Before evaluating this carpet, we

placed it into an aquarium (held at room temperature) containing drierite (a granular desiccant) for a period of 16 hours to reduce humidity from it so that this variable would not interfere with volatilization of chemicals from this carpet. The experiments were conducted on June 3 and 4, 1993. A summary of the results is given below:

- Day 1,      1st Hour of Exposure:
  - barely detectable sensory irritation, if any
  - no pulmonary irritation
  - no neurotoxicity
  - no death
- Day 1,      2nd Hour of Exposure:
  - barely detectable sensory irritation, if any
  - a few short periods (3-5 seconds) of pulmonary irritation on one animal, one of these periods was a very well defined pulmonary irritation pattern
  - no neurotoxicity
  - no death
- Day 2,      1st Hour of Exposure:
  - no sensory irritation
  - no pulmonary irritation
  - no neurotoxicity
  - no death
- Day 2,      2nd Hour of Exposure:
  - no sensory irritation
  - no pulmonary irritation
  - no neurotoxicity
  - no death (as of June 9, 1993)

G. Anderson Laboratories vs. University of Pittsburgh vs. EPA.

We can compare the results obtained in two laboratories for four carpets. Both laboratories have evaluated Carpets C and D, supplied by CRI to both laboratories, and Carpets Y and Z obtained by Dr. Anderson who then supplied them to Dr. Alarie. These four carpets were evaluated in both laboratories using the Anderson system. A fifth carpet, AT#3, was also supplied to both laboratories by CRI. It was evaluated at 37°C, 62°C and 70°C at the University of Pittsburgh and by Dr. Anderson using her system.

A brief summary of these results is presented in the Table below:

Carpet	Anderson Laboratories Findings	University of Pittsburgh Findings
C	No Neurotoxicity, No Death Minor Sensory or Pulmonary Irritation	No Neurotoxicity, No Death Minor Sensory or Pulmonary Irritation
D	Same as Carpet C	Same as Carpet C
Z	Neurotoxicity and Death Minor Sensory or Pulmonary Irritation	Neurotoxicity and Death Minor Sensory or Pulmonary Irritation
Y	Neurotoxicity and Death Visible Sensory Irritation, Definite Pulmonary Irritation	Minor Sensory Irritation, if any Pulmonary Irritation, Very Brief No Neurotoxicity No Death
AT#3	No Neurotoxicity, No Death Sensory and Pulmonary Irritation	No Neurotoxicity, No Death Sensory and Pulmonary Irritation

<sup>1</sup>The summary of the results at Anderson Laboratories is my characterization of her results. Dr. Anderson may want to make some modifications.

From this Table, similar results were obtained in both laboratories for Carpets C, D, Z and AT#3. The results are not similar for Carpet Y. For Carpet Y, we observed no effects except for very brief pulmonary irritation in one animal and minor sensory irritation, if any, in one animal. Thus our results are different than those obtained at Anderson Laboratories for this carpet. This is surprising since with Carpet Z we obtained results similar to those obtained at Anderson Laboratories when evaluating this carpet four times. Furthermore, when evaluating Carpet Z using the Alarie system at 70°C we obtained severe neurotoxicity after a single one hour exposure.

We therefore decided to evaluate Carpet Y again, using the same pieces used on June 3 and 4. For this evaluation, performed on June 7 and 8, we used the Alarie system at 70°C. From the beginning of the first hour of exposure we observed a large amount of water vapor condensing on the wall of the exposure chamber but not for the subsequent exposures. A summary of the findings are:

- minor sensory irritation
- minor pulmonary irritation
- no neurotoxicity
- no death (as of June 9)

X

On June 8 I received a call from Dr. Tepper of EPA who conducted the evaluation of Carpet Y. He confirmed that no effect was found at EPA with this carpet and that neurotoxicity and death was observed with Carpet Z when EPA conducted experiments at Anderson Laboratories but not in their laboratories at EPA.

We have results that are, to say the least, difficult to explain. Similar results were therefore obtained for Carpet Y when evaluated here and at EPA. These results obviously differ from those obtained at Anderson Laboratories.

### III. General Comments on Evaluation of Volatile Chemical Emissions from Carpets

When using a bioassay to evaluate potential toxic effects, toxicologists use much higher exposure concentrations than those likely to be encountered by humans. The main reason for this is to magnify the effect so that it can be easily recognized. The second reason is that in general, animal bioassays are not very sensitive.

In order to raise the exposure concentration of volatile chemicals from carpets three approaches can be taken. They can also be combined.

#### 1. Heating.

If a carpet is placed in an enclosure, as an aquarium, heat can be applied to increase the rate of volatilization and therefore the exposure concentration. If so, extrapolation of the results to humans will be valid only if thermal decomposition products are not formed since they would not be found at room temperature. A temperature of 70°C is not high enough to thermally decompose carpets. There will obviously be a limit in using this approach and the temperature used should be well below the temperature at which thermal decomposition products will be produced. For one carpet, irritating thermal decomposition products were produced beginning at 190°C. Therefore carpets should not be evaluated at

temperatures much more than 70°C.

There is a second problem when heat is used. When 70°C was used we always observed condensation on the wall of the exposure chamber which is at 22-24°C. Most of it is probably water. Whether or not this creates some interference remains to be determined. It would be possible to prevent this by placing carpets in enclosures with large amounts of drierite and for long periods (days-weeks) but this also has its own set of problems.

### 2. Surface Area of Carpet/Volume of Room Ratio.

Again using an enclosure such as an aquarium, the surface area of carpet/volume of room ratio can be increased much above what would represent a normal room. The air exchange can also be reduced in comparison to a normal room. These will then result in producing as high an exposure concentration as possible. This approach is simple and with little technical problems.

### 3. Open vs. Close System.

The aquarium system used by Dr. Anderson can be characterized as an open system in the sense that the enclosure is continuously ventilated with air entering and leaving the enclosure. Technically it is easier to use an open system than a closed system to expose animals. Unfortunately, with an open system the concentration of volatile chemicals and the nature of the volatile chemicals will be continuously changing. Nothing can be worse than this for a bioassay procedure, particularly when two laboratories are attempting to duplicate results. To some extent this is mitigated by the fact that the carpets are heated for two hours

with the aquarium closed prior to exposing the animals. Thus a stable or quasi-stable mixture is created during this period. However, when exposure is initiated the concentration will be high and then gradually decrease with ventilation of the aquarium.

Using a closed system would be preferable, in order to maintain a high and stable exposure concentration as well as to maintain the same kind of chemicals in the mixture at all times, probably not possible, but at least to minimize variations. However, a closed system will have its own set of technical problems.

#### IV. Extrapolation of the Effects to Humans

Effects such as sensory and pulmonary irritation obtained in Swiss Webster mice can be directly extrapolated to humans. When these effects are obtained in mice, humans will complain of eyes, nose and throat irritation and of difficulties in breathing. However neurotoxic effects are more difficult to extrapolate. The severity of such effects, as well as deaths observed, would dictate from a public health prevention approach that the effects observed in mice be considered to also occur in humans (possibly only in some humans) even if at this time there is no adequate proof. I would certainly support this position if the results are reproducible in several laboratories. Unfortunately we do not have complete reproducibility at this time for neurotoxic effects.

V. Reproducibility

If toxicologists are asked to duplicate results they are given the same chemical or mixture. Unfortunately this is not possible with carpets since different pieces of carpets are used. The product is not perfectly uniform to start with and furthermore volatilization of chemicals is continuous with time, thus the product is continuously changing. We must find a way to store the carpet samples to reduce this variation.

Attention will have to be paid to this issue before further evaluation is undertaken. Also, attempts to duplicate toxicological effects using a single exposure concentration is a very dangerous business. Normally, what is done is the use of multiple concentrations, progressively increasing so that the effects measured are also increasing. When such is done a concentration-response relationship can be established and the validity of the findings is certain. Dr. Anderson has used this last approach. We have not done so because of the limited amount of carpet available. However this is what needs to be done.

VI. What Should We Do Now for Consumers?

The bottom line is not whether or not the results first reported by Dr. Anderson are completely reproducible. Rather, the bottom line is to deliver a safe carpet to consumers.

There are 3 main components in a carpet:

- face fibers
- backing
- glue to hold the above components

The major component emitting volatile organics is the glue. Cured glues can be easily obtained and evaluated using the same procedures used for carpets. Evaluating cured glues would be a lot simpler. A large quantity such as 1 to 2 pounds can be produced easily.

It can be stored in closed glass containers and refrigerated. Then it could be shipped to different laboratories for experimentation at any time. It would be easy to magnify the exposure concentration and therefore we could obtain concentration-response relationships. In this way toxicologists could help in finding the least toxic type of glue. The same approach could be used for evaluation of the face fibers and the backing if we suspect volatile organics to be emitted from them.

**Reports Prepared**

1. Alarie, Y. and Stock, M. F. Toxicological Investigations of Carpet Emissions in Mice from Carpet Samples Submitted by CRI and for Carpet Z. Report to the Carpet and Rug Institute, Dalton, GA, October 26, 1992, 76 pages.
2. Alarie, Y. and Stock, M. F. Toxicological Investigations of Carpet Z Volatile Emissions and Development of a Standard Carpet Emission Generation System. University of Pittsburgh Report, January 20, 1993, 64 pages.
3. Alarie, Y. and Stock, M. F. Toxicological Investigations of Carpet AT#3 Volatile Emissions. Report to the Carpet and Rug Institute, Dalton, GA, March 1, 1993, 36 pages.

**Acknowledgment**

The work performed for Carpet Y at the request of Mr. Synar was done using facilities, equipment and personnel supported under Grant #5 RO1 ES02747-11 from the National Institute of Environmental Health Sciences (NIEHS).

**Brief Biographical Sketch**

Yves Alarie was born in Montreal, Canada in 1939. He graduated in 1963 from the University of Montreal with a Ph.D. in Physiology. He worked at Hazleton Laboratories in Falls Church, VA from 1963 to 1969. While there he developed a method to evaluate sensory irritation under funding by the U.S. Army. This method became a standard ASTM method in 1984. He joined the University of Pittsburgh in 1970 as an Associate Professor of Respiratory Physiology and Toxicology and is currently a Professor at this institution. His research interests for the past 30 years has been inhalation toxicology of industrial chemicals.

c:\ya\enr June 9, 1993

A complete Curriculum Vitae for Dr. Alarie is filed  
for the record in the subcommittee office.



# University of Pittsburgh

GRADUATE SCHOOL OF PUBLIC HEALTH  
Department of Environmental and Occupational Health

June 16, 1993

Mr. Jim Aidala  
Subcommittee on Environment, Energy  
and Natural Resources  
Committee on Government Operations  
2157 Rayburn House Office Building  
Washington, DC 20515-6143

Dear Mr. Aidala:

As requested at the hearing on June 11, 1993 you will find enclosed my curriculum vitae.

I would also ask that a correction be made on page 12 of my written statement. Line 5 from the bottom is "On June 8 I received a call from Dr. Tepper of EPA.....". This line should be "On June 8 I received a call from Dr. Tepper, of Mantech, a contractor for EPA.....". I am sorry for the mistake and hope this can be easily corrected.

Sincerely,

*[Signature]*

Yves Alarie, Ph.D.  
Professor

YA:mh  
Enclosure

Mr. SYNAR. The final witness on this panel is Victor Kimm, who is no stranger to this subcommittee.

Mr. Kimm, welcome again this morning.

**STATEMENT OF VICTOR J. KIMM, ACTING ASSISTANT ADMINISTRATOR FOR PREVENTION, PESTICIDES AND TOXIC SUBSTANCES, U.S. ENVIRONMENTAL PROTECTION AGENCY, ACCOMPANIED BY ROBERT S. DYER, Ph.D., ASSOCIATE DIRECTOR, HEALTH EFFECTS RESEARCH LABORATORY, RESEARCH TRIANGLE PARK, NC**

Mr. KIMM. Thank you, Mr. Chairman.

With me this morning is Dr. Robert Dyer, who is the associate director of our Health Effects Research Laboratory in North Carolina and is coordinating our activities in this testing program.

We have a lot of information. Detailed information is in the testimony, but let me try to get to the matter at hand.

Last fall when we learned of the results of Dr. Anderson's Laboratory results, we thought that those were very important findings because they seemed to show a gross effect. For the activities that we would like to undertake, being able to see a gross effect is a critical element.

However, in order to proceed in this matter, you have to be able to replicate, that is produce in another laboratory with the same techniques, the same results, so that you know what you are looking at. Simply stated, the process that we proposed to pursue was first to replicate the test, making sure we could do it the same way.

Second, to look for the causative agent, that is in a closed system, the chances, hopefully, would be fairly high that we could identify the specific substance that is causing the adverse effect in animals.

Third, to then consider the question, is this adverse effect in animals a potential risk to people, which would probably be the case.

And finally, we would then be able to develop some kind of an appropriate remedial program based on understanding of what was causing the adverse effect. Because of the importance that we saw in this activity, we reprogrammed significant internal resources and put together what we believe is a first class scientific team to replicate the testing.

We tried to replicate it in every manner, including using animals from the same source, and the same bedding materials. We also developed a written test protocol that Dr. Anderson and our scientists agreed with, and subjected this to a thorough period of review at the front of the process.

We thought we had as much parallel in our activities as we knew how to get. And at the end of the experiment, I guess it was May 25, we reconvened the peer review panel to review all of our data and the science supporting our data, which they believed was to be of top quality, and to summarize their findings. But the bottom line of this testing was that we did not independently replicate the severe toxicity reported by the Anderson Laboratory.

In fact, we did not see any convincing signs of even mild toxicity in the animals. EPA does not believe that these findings prove that carpets don't pose a problem. Nor do they enable us in any way to say that carpets do pose a problem. It is a real dilemma.

The next steps that we have in mind, which I would like to summarize, involve trying to continue to unravel the science in this case. That is, we will propose and have actually begun discussions, assuming that we will have the continuing cooperation of all of the interested parties, to get together and review the science. That is the peer review met to review the tests that we conducted and the results reported by Dr. Anderson.

We now will hopefully have access to Dr. Alarie's activities, and I believe that there are two other testing labs that ran the same carpet and have also conducted testing. Hopefully, there will be a more robust data set to look at. We would like to investigate a number of issues and among them I would include the following.

One, we would like to look at the questions, there were some specific questions raised in the first peer review of the data that went to statistical treatment of data and that kind of thing.

We would also like to discuss a protocol which perhaps would follow up on the recommendations of the first test data which suggests, with the cooperation of Dr. Anderson, looking in that lab to see if there may be some unique set of circumstances there that are contributing to the differences in the significant effects. That might be conducted by EPA scientists. It might be conducted by outside scientists who would look at questions of is there something unusual in the animal colony, or in the air supply, or in perhaps the water supply there.

We would also like to take a comprehensive look at the broader question of carpet research, although the scope of these types of investigations is far beyond our resources to address at the moment. In an ideal world, we would prefer to develop a significant data base on the complete content of what is in carpet and floor coverings.

We would like to see work done on characterizing emissions. We think it would be helpful to look at the toxicological information we have on the chemicals. There is also a more fundamental issue which is that the toxicological testing protocols that we presently apply for the most part are addressing chronic illness, cancer, birth defects, this type of thing, and do not adequately address the more frequently reported sensitivity type responses that accompany many of the complaints in terms of indoor air contamination.

I think it would also be useful to look at occupational exposure and see if there is anything we can learn either from workers or installers who presumably have much higher exposure rates than does the average person.

And finally, if resources were available, it might be interesting to see if some case studies could be conducted in which problem areas were investigated and carefully analyzed to see if they can find the cause.

In the case that Congressman Sanders cited, our own case in 1988 with an indoor air problem, we spent hundreds of thousands of dollars trying to find out what caused the problem and were never able to make a connection. And so this continues to be a mystery for us.

At any rate, we believe that the next step in this process ought to be a careful scientific assessment. We hope that we will continue to receive the level of cooperation that we have had from all inter-

ested parties, and would plan our next steps based on the outcome of this workshop.

Thank you.

Mr. SYNAR. Thank you, Mr. Kimm.

[The prepared statement of Mr. Kimm follows:]

TESTIMONY OF  
VICTOR J. KIMM  
ACTING ASSISTANT ADMINISTRATOR  
FOR PREVENTION, PESTICIDES AND TOXICS SUBSTANCES  
U.S. ENVIRONMENTAL PROTECTION AGENCY  
BEFORE THE  
SUBCOMMITTEE ON ENVIRONMENT, ENERGY, AND NATURAL RESOURCES  
COMMITTEE ON GOVERNMENT OPERATIONS  
UNITED STATES HOUSE OF REPRESENTATIVES  
JUNE 11, 1993

Mr. Chairman and members of the Subcommittee, I am Victor J. Kimm, Acting Assistant Administrator for the Office of Prevention, Pesticides and Toxic Substances (OPPTS) of the U.S. Environmental Protection Agency (EPA). I welcome the opportunity to talk to you today about what EPA knows about the potential health risks posed by carpet emissions and what EPA has done and plans to do to address these potential risks. First, however, let me put what we are doing on carpet emissions in the broader context of what we are doing to improve indoor air quality.

EPA'S APPROACH TO INDOOR AIR AND CARPET EMISSIONS

The Agency is committed to an innovative approach to addressing indoor air quality issues. Recognizing that indoor air quality is complicated by a myriad of building factors, pollutants and sources, EPA is pursuing a "cluster" approach to indoor air. This approach will allow the wide-range of regulatory and non-regulatory tools available to the Agency to be meshed effectively to maximize our efforts.

A good example of this cluster approach is the collaboration among EPA's Office of Air and Radiation (OAR), Office of Pollution Prevention and Toxics (OPPT), and Office of Research and Development (ORD) on an Indoor Air Source Characterization Project that will assist in defining exposures and risks caused by indoor pollution sources. Through this effort we are developing a Source Ranking Database, which will provide a mechanism for systematically reviewing and comparing a large number of indoor air source categories to identify those warranting further evaluation.

EPA has developed an indoor air strategy that gives special

attention to carpet issues. The Agency shares your concern about the health problems that have been associated with indoor air pollution sources, such as exposure to carpet emissions, and is working to determine the cause of these reported problems.

In the course of my testimony, I will outline what the findings of Anderson Laboratories tell us, and the results of our replication studies.<sup>1</sup> I will discuss what additional actions are already being taken to address the carpet emissions issue, and what followup actions the Agency is planning to determine if there is a clear causal relationship between the health problems reported and a chemical constituent(s) of carpet to which people are exposed.

#### ANDERSON LABORATORIES STUDIES

Last summer, through news releases, and last October at a Senate hearing, Anderson Laboratories, Inc. released information describing neurotoxicity, pulmonary irritation and death in mice exposed to emissions from certain carpets. The information released described tests which had four primary features. The first exposure feature involved placing carpet into an aquarium, heating the aquarium, and withdrawing air from the aquarium into a chamber from which four mice received their breathing air. The second feature involved a modification of a standard test of sensory irritation [American Standard Testing Method (ASTM) E 981]. The standard test measures the rate at which the mice breathe during exposures. Research has shown that chemicals which humans find irritating (sensory irritation), when present in sufficient concentration, decrease the rate at which mice breathe. Further, certain chemicals, when present in sufficient concentration, change the pattern of breathing in a way that can be interpreted to indicate pulmonary irritation. Pulmonary irritation is considered to be more serious than sensory irritation. The standard ASTM method was modified to include multiple exposure periods rather than a single exposure. The third feature of the Anderson tests involves observation of the behavior of the animals after completion of the ASTM test. This

behavior is scored by an observer and interpreted as an indicator of potential neurotoxicity. The fourth feature of the Anderson tests is the observation that death occurred in some mice. These descriptions of neurotoxic effects and death were particularly striking because effects of this nature are not consistent with our current knowledge of the emissions from carpets, and have not been described in the peer reviewed scientific literature. The potential public health significance of these findings prompted a vigorous effort by EPA, with assistance from the Consumer Product Safety Commission (CPSC), to evaluate their scientific reliability, by determining whether the findings could be replicated independently. Aside from being one of the cornerstones of science, independent replication in our own laboratories is necessary before subsequent studies can be done to determine the causative agent(s) and the relevance of the observations for public health. Because of the importance that the Agency attached to this work, the decision was made to conduct the replication studies in EPA's own laboratories.

EPA/ORD STUDIES

EPA is aware that carpet, along with other indoor products, has been associated with a variety of complaints, symptoms and signs. Based upon our knowledge to date, we have no reason to believe that the nature of complaints associated with carpet is different from the nature of complaints associated with other indoor sources. In order to establish a firm relationship between indoor sources and complaints, EPA must have available methods which are objective, sensitive, reliable and valid for this purpose. In our opinion, methodologies which fit these criteria are not yet available. For this reason, EPA's indoor air research program is identifying, developing, improving, and validating methodologies which can be used for this purpose. It is in the context of this research program that we began evaluating the ASTM E 981 method some time ago. Although we concluded, in a peer-reviewed paper published in the journal Indoor Environment last summer, that the value of ASTM E 981 for

purposes of evaluating indoor air quality is currently limited, we nevertheless had planned to further evaluate the methodology as used by Anderson Laboratories, prior to the reports of toxic effects of carpet. We were also in the process of working with other test methods when the Anderson Laboratories' information came to our attention. Given the potential significance of Anderson's reports, we dedicated ourselves to investigating the four features of the Anderson Laboratories' testing which I have described above.

Our goal was to understand the toxic effects reported by Anderson Laboratories. Before beginning to understand those effects, it was necessary for us to be able to reproduce them in our laboratory. The process by which this is done is called independent replication. Independent replication is also necessary to establish that a scientific finding is reliable. A scientific finding is reliable when it can be reproduced repeatedly by any qualified scientist given the protocol and the necessary equipment.

From the beginning, we took our studies very seriously. In addition, we remained highly confident throughout, and had every reason to believe that we would be successful in our effort to independently replicate the Anderson Laboratories' findings. Anderson Laboratories had shown their findings to be reliable in their own laboratory, in that their testing of many different carpets revealed toxic effects. We had a team of highly skilled scientists working on this project, and we maintained a collegial relationship with Dr. Anderson throughout the testing period. Even more to the point, we visited Anderson Laboratories in January, 1993, and not only witnessed a toxic exposure, but were able, using part of our apparatus and part of theirs, to produce lethality as well. There neither was, nor is, any doubt in the minds of our scientists that these studies in Anderson Laboratories resulted in death to some mice.

The bottom line from our studies, however, is that despite our best efforts, which were considerable and which I will

describe shortly, we did not independently replicate the severe toxicity described by Anderson Laboratories. In fact, we did not produce any convincing signs of even mild toxicity attributable to carpet in our tests. Our present conclusion is that there must be an essential difference between the conditions of our experiments and those of Anderson Laboratories, which, despite our efforts, we have not been able to identify.

At this point, I would like to describe our efforts in more detail. First, I will outline the steps we took in our attempt to perform an independent replication of the Anderson Laboratories' observations. Second, I will outline the scientific practices we followed during the course of these studies. Third, I will summarize the results of our studies and contrast them with the Anderson Laboratories' results. Finally, I will summarize the results of our peer review, and some of the additional work we have completed.

The steps we took in our attempt to perform an independent replication of the Anderson Laboratories' observations included assembling a highly skilled scientific team, assembling the test apparatus, using the same strain of mice from the same supplier and the same bedding, performing exploratory/pilot/shakedown studies, drafting a formal protocol, reciprocating visits with Anderson Laboratories' personnel, having peer review of our study protocol, performing the formal replication study, analyzing and peer reviewing the study results, performing additional exploratory studies, and initiation of a dialogue with industry scientists performing similar work.

The scientific practices we kept in focus as we performed our studies were those of replication, blind testing when subjective measurements were involved, peer review, quality assurance, and inclusion of measurements which would help us develop testable hypotheses to account for the observed findings. I have already described the importance of replication. Scientists only accept cause-effect relationships when they can be demonstrated reliably by independent scientists.

High caliber science maintains high quality standards in several ways. Many scientific observations require subjective judgment or subjective scoring, particularly in the realm of biology. Because scientists recognize that whenever subjective evaluations are made, there is an unconscious tendency for our expectations to color our observations, good scientific practice requires that critical subjective observations be made by a trained individual who is not aware of the specific conditions of the test. This practice is called blinding, and in the case of these studies refers to the fact that the individual performing scoring should not know whether the data collected are from carpet-exposed mice or control mice. In our formal replication, we tried to ensure blinding of the testing laboratories by asking the CPSC to collect carpet and randomize shipment of carpet and control (no carpet) samples to the test laboratories. At EPA, we established elaborate procedures to ensure maintenance of this blinding.

Peer review refers to the process by which outside experts provide independent comment on the quality of a research design, the data collected and the interpretation placed upon the data. Most scientific journals send articles to peer reviewers before they will consider them for publication. Scientific progress is usually measured in terms of peer-reviewed publications, and EPA judges the performance of its scientific staff in large measure by the peer-reviewed publications they write. The process of publishing peer-reviewed papers is a lengthy one, and when EPA must act before important data can be published in the peer-reviewed literature, independent peer reviews are held. In the case of our carpet study, we believed that public concern was sufficient that we could not wait for our studies to appear in the peer reviewed literature before they became known. Therefore, we held independent peer reviews of both our research protocol, to ensure that the scientific design was of high quality, and of our research findings, to ensure that our data were appropriately collected and interpreted. In addition to

planning for a peer review at the end of our study, we also arranged to have independent quality assurance audits of our procedures and our apparatus during the study. The purpose of these audits was to ensure that all systems were properly calibrated and operating as expected.

Finally, since our expectation was that we would be successful in replicating the Anderson Laboratories' findings, we included some measurements that were designed to help us develop testable hypotheses that would account for the findings. We presumed that emissions from the tested carpets would account for the findings, so we included evaluation of the emissions from the tested carpets. In addition, we also analyzed the carpet pieces directly, to determine the presence of pesticides or microbiological contaminants.

A major feature of our study was that we collaborated with Anderson Laboratories in its design and execution. The protocol for performing the study was agreed to by both EPA and Anderson Laboratories. Each lab received pieces from the same carpet to test, and the toxicology testing done routinely by Dr. Anderson was included in the study design. Scoring procedures were discussed and modified to accommodate the desires of both sets of investigators. In addition, EPA performed a large number of other toxicological and analytical measurements. --

In this collaborative study, there were three tests. Two of the tests were completed using different carpet samples, and one test was a control (no carpet). Each of these three tests was conducted twice, so there were a total of 6 experiments performed. CPSC collected the carpets from sources which had previously supplied carpets to Anderson Laboratories, and which had been reported to cause severe toxicity and death when tested at Anderson Laboratories. CPSC randomized the 6 different sample sets, and sent a set simultaneously to EPA and to Anderson Labs for blind testing. After each laboratory had completed all 6 experiments, the code was broken for data analysis purposes. On May 26, 1993, a peer review of the two data sets (EPA's and

Anderson Laboratories') was held. The peer reviewers had received draft reports from EPA and from Anderson Laboratories several days previously. At the peer review, scientists from each laboratory described their study and results, and the peer reviewers asked questions and discussed findings with study participants. The two reports, one from EPA and one from Anderson Laboratories, make clear that there was virtually nothing in common between the two sets of findings. EPA found no deaths in 24 tested animals, no severe or moderate sensory irritation, no severe or moderate pulmonary irritation, and no clear evidence of neurotoxicity. By contrast, Anderson Laboratories' findings included a total of 5 test-related deaths in 24 animals, severe pulmonary irritation, and neurotoxicity.

During the course of preparing for and trying to understand these studies, EPA performed many exploratory studies (over 30) in which we examined a large number of variables and tested carpet samples supplied to us by Anderson Laboratories. Some of these studies were performed with as much as 10 square feet of carpet in a specially designed source chamber. Some studies were done with very dry air, some with normal laboratory air, and some with partially humidified air. Some of the studies allowed for observation of animals for many days after exposure, and some of the studies involved extensive heating of the carpet samples. In all, we have tested over 140 mice. With all of these studies, the only evidence of carpet-related neurotoxicity which we were able to produce occurred during our January, 1993 visit to Anderson Laboratories.

This has been a very frustrating effort for our scientists. The science performed by EPA was characterized by the peer reviewers as being of very high quality, yet we were not able to replicate the Anderson Laboratories' findings. The conclusion with which we are left is that very subtle but very important differences exist between the studies done by Anderson Laboratories and those done by EPA.

EPA AND INDUSTRY ACTION TO DATE

As you know, health concerns associated with carpet emissions are not new to EPA. The issue first surfaced in 1988, when extensive renovations were carried out at the EPA headquarters complex, involving carpet removal and installation, painting, and furniture replacement. While new carpet has been reported by a number of EPA employees (and by other individuals around the country) to be the cause of their complaints, EPA simply does not have a sound scientific basis, notwithstanding the Anderson Laboratories' work, to conclude that emissions of 4-phenylcyclohexene (4-PC) or other carpet constituents can be causally associated with the reported health problems. In fact, all of the health effects studies of 4-PC that have been completed so far have indicated the chemical to be of low toxicity. This includes a recently completed 2 week repeated exposure study in mice which included a standard battery of neurotoxicity measures.

EPA's Carpet Policy Dialogue

Nevertheless, we recognized several years ago that the public concerns about carpet emissions warranted a response. The Agency decided to pursue a general pollution prevention strategy that would seek reductions in total volatile organic chemical (TVOC) emissions from new carpets to minimize indoor exposures where reasonable.

To achieve this end, EPA decided to convene a Policy Dialogue to bring together government, industry, labor, and public interest groups to address the issues and challenges posed by carpet emissions. EPA convened the Carpet Policy Dialogue on August 21, 1990, and committed to a one-year effort to: 1) develop an analytical test method to measure TVOC emissions from carpet floor covering products; 2) obtain voluntary agreements from carpet floor covering industries to undertake testing programs to characterize TVOC emissions from their products; 3) examine process engineering aspects of carpet floor covering materials to identify opportunities for reducing volatile organic

chemical (VOC) emissions; and 4) provide information to the interested public about new carpet and TVOC emissions.

The Carpet Policy Dialogue concluded its activities on September 27, 1991. It made progress in several areas of exposure reduction or pollution prevention and industry-wide product stewardship. The industry (i.e., manufacturers of carpet, carpet cushion, carpet installation adhesives, and raw materials such as fibers and latex) and installers of carpet systems demonstrated a willingness to commit the time and resources to work constructively toward a better understanding of the role of new carpet, carpet associated products, and carpet installation practices on indoor air quality.

It is important to note that the dialogue process brought the carpet emissions issue "front and center" in the public eye as a source of concern about indoor air pollution, despite the fact that many other indoor sources (e.g., cleaners, strippers, pesticides) may pose equivalent, if not greater, potential exposures and risks.

I have summarized below some of the Policy Dialogue's major accomplishments:

- It produced a standard, peer-reviewed, small chamber test method to measure and compare TVOC emissions from carpet and related materials. --
- It secured a voluntary agreement from the Carpet and Rug Institute (CRI) to conduct a major study to define carpet TVOC emission decay characteristics. In addition, the CRI will also conduct a comprehensive study of carpet product types to provide the information necessary to assess and compare carpet emissions on an industry-wide basis.
- It secured a voluntary agreement from the Carpet Cushion Council to conduct a testing program which will report a profile of TVOC emissions from new carpet cushion. The voluntary testing program will include decay curve testing of TVOC emissions for each of the

five carpet cushion product types available in commerce.

- It secured a voluntary agreement from the Manufacturers of Carpet Cushion to set in place technical and manufacturing task forces to investigate ways in which TVOC emissions from new carpet cushion can be reduced at the manufacturing and process level for each of the five generic types of carpet cushion.
- It prompted the General Services Administration (GSA) to initiate the development of requirements to make a low VOC carpet floor covering available for use in government offices. It is anticipated that a low TVOC emitting carpet floor covering could be available from the GSA Federal Supply Schedule for the contract period beginning April 1994, provided adequate technical data is available from the TSCA Carpet Emissions Administrative Record.
- It generated a brochure to provide the interested public with information about carpet emissions, indoor air quality, and exposure reduction. Industry representatives have told us that they are in the process of distributing approximately 700,000 copies of this brochure to carpet retailers and encouraging them to make the information available to their customers.
- It secured a voluntary agreement from the Floor Covering Adhesive Manufacturers Committee of the National Association of Floor Covering Distributors to support the research activities necessary to modify the standard and analytical test method for obtaining TVOC emission measurements from floor covering adhesive products. This group also committed to a voluntary testing program that will provide a baseline of comparative TVOC emissions information for floor covering adhesives and sealers.
- It reinforced a market climate which encouraged the

- introduction of low-emitting carpet adhesives.
- It prompted a Styrene Butadiene Latex Manufacturers Council report indicating that this industry has reduced VOC emissions from their products in recent years and that it has completed a series of toxicity tests for 4-PC which is emitted from latex products.
  - It secured a voluntary agreement from the Styrene Butadiene Latex Manufacturers Council to provide data from their ongoing quality analysis programs and to report the company-by-company weighted average of 4-PC in styrene butadiene latex sold for carpet backing applications for 1991 and 1992 as the data become available. This information will be used to assess the feasibility of utilizing the information to develop future quality control activities.
  - It secured a voluntary agreement from the Floor Covering Installation Contractors Association to enhance training programs to include information about indoor air quality, educate carpet installers about proper installation procedures, and encourage installers to adhere to the Carpet and Rug Institute installation guidelines (CRI 104; CRI 105).
  - It compiled information about process engineering research activities that deserves consideration for identifying potential control measures that may, in the future, lead to reduced TVOC emission levels in carpet related sources.
  - It suggested potential control strategies to minimize VOC emissions from carpet floor covering systems in new construction and renovation projects.
  - It generated a Compendium Report describing the Policy Dialogue's activities, findings, accomplishments, and recommendations.

Status of Industry's TVOC and 4-PC Testing

As I indicated above, the carpet industry has agreed to

undertake additional testing programs to better characterize TVOC emissions from their products. The following is a brief summary of the status of these testing and reporting programs:

- The TVOC emissions testing on carpet has been completed. The Carpet and Rug Institute (CRI) indicates that the statistical analysis of the results and a draft report will be submitted in June.

The Carpet Cushion Council (CCC) has completed the decay curve testing (Phase I and II) of their Dialogue commitment. They indicate that the statistical analysis of the results and a draft report will be submitted in July. The next step will be to initiate the carpet cushion profile study of carpet cushion products. The CCC also informs us that, in 1991, they established 5 technical task forces to identify sources of VOC emissions during the manufacture of carpet cushion products and to identify ways to reduce VOC emissions. The CCC is preparing an interim report to describe progress in this effort to date. We anticipate that their report will be submitted to EPA in July.

The testing program for carpet installation adhesives has been further refined based on results of the preliminary testing program. A Quality Assurance Project Plan is being prepared. We expect a draft final report of the results to be submitted to EPA sometime this fall. In addition, the Floor Covering Adhesive Manufacturers Committee submitted their initial report on the percentage of sales of low odor, low emission adhesives vs. those commonly in the market place. EPA will use this information to assess industry-wide progress toward lower emitting products.

The Styrene Butadiene Latex Manufacturers Council (SBLMC) submitted its third and final report on the utilization of latex 4-PC data in a voluntary quality control program. SBLMC indicates that the calculated industry weighted average 4-PC content of styrene butadiene latex sold for carpet backing applications for the 4th quarter 1992 was 92 ppm. This represents an overall average reduction of 4-PC of 63% since 1988.

It should be stressed that EPA is committed to technically evaluating the TVOC test results generated by industry to ensure that these voluntary testing programs meet the objectives publicly specified by the Agency at the outset of the Dialogue effort. EPA will evaluate the quality of the data and test results to assess if the testing fulfilled the Carpet Dialogue requirements. EPA will also determine the need for communicating this information to the public and whether or not other voluntary actions with industry are needed.

In addition to the TVOC emissions testing, the Agency has been following industry's testing in response to the experiment at Anderson Laboratories. The SBLMC completed additional inhalation toxicity tests of 4-PC at 1,000 times the level emitted by new carpet. The testing involved single dose and repeat 4-PC exposure studies, focusing on neurotoxicity endpoints. These new studies complement available information obtained in the rats under comparable conditions. EPA only recently received a copy of the final report for this study. EPA's preliminary review of the results showed that 4-PC is not a neurotoxicant under the conditions of this experiment.

Status of Brochure and Fact Sheet:

Copies of the Carpet Dialogue brochure (blue brochure) continue to be distributed by many organizations participating in the Dialogue. The brochure is also available from the Consumer Information Center (CIC). Since October 1992 the CIC has distributed some 28,000 copies of this publication and they indicate that 7,500 copies were distributed during April. EPA will continue to distribute this brochure until all supplies are exhausted, and plans to revise the brochure or replace it with a Fact Sheet.

Since October 1992, both EPA and CPSC have prepared separate Fact Sheets to supplement the information described in the blue brochure. These Fact Sheets are being distributed via public information hotlines at both EPA and CPSC. The EPA Fact Sheet alerts consumers to new information that became available from

Anderson Laboratories after the close of the Carpet Dialogue and explains that EPA's ORD initiated a study to replicate Anderson's test results and conduct additional testing to identify the contaminants the mice are exposed to and evaluate the observed biological effects. Both Fact Sheets reiterate the tips for consumers described in the original blue brochure.

At the October 1st hearing, there was some concern expressed about language in the blue brochure. EPA was asked to reconsider the text of two passages in view of the reports from Anderson Laboratories. We responded by sending letters to the Carpet Dialogue brochure "sign-on" organizations to determine if agreement could be reached about changing the text of the two passages in question. While no agreement was reached on the EPA proposed text changes, several organizations suggested that the EPA Fact Sheet should be used as an interim measure until the results of EPA's replication study become available. EPA determined that a wider distribution of the Fact Sheet was warranted and proposed to work together with industry to develop and implement a direct mailing to all U.S. carpet retailers and installers. The direct mailing would include a copy of the Fact Sheet along with a letter recommending that this information be provided to the interested public. By providing this material at the point of sale and installation, we could be assured that the public would receive the most current information about carpet and indoor air quality. The Carpet and Rug Institute has responded favorably to the proposed direct mailing of the Fact Sheet to carpet retailers, installers, and carpet cleaners.

EPA and CPSC decided to combine the two separate Fact Sheets to allow both government organizations to speak with one voice on this issue. At this time, the joint EPA/CPSC Fact Sheet is still under development.

Evaluation of the Carpet Industry's "Green Tag" program

After the conclusion of the Carpet Dialogue, the Carpet and Rug Institute voluntarily agreed to undertake a product emissions testing program to characterize TVOC emissions from carpets.

This testing goes beyond that agreed to during the Carpet Dialogue. Under this effort, carpet manufacturers began to test their products to characterize emission levels. Testing is done using the small chamber emissions testing method that was developed through the Carpet Dialogue work.

Out of a desire to communicate the results of product emissions testing to concerned consumers, the carpet industry launched an independently voluntary public information program in July 1992. This effort has been referred to as the "Green Tag" program; it utilizes carpet emission testing results and product labeling to inform consumers that a particular carpet meets a voluntary industry standard for low emissions. Carpet manufacturers who participate in the program attach a "green tag" or label to their products that are among carpet lots tested and found to have low emission characteristics, as specified in criteria established by the industry for use in this program. In addition, the industry has developed a brochure that explains the purpose and significance of the "green tag" labeling; it is intended for distribution at carpet points of sale. The brochure also attempts to inform the consumer about the relative significance of carpets as a source of indoor air pollution and how emissions from new carpets should reduce with time.

EPA is uncertain, as are others, that this information program is communicating effectively to consumers the intended pollution prevention message--that new carpets with low emission characteristics should result in less pollution of indoor air. Our concern is that consumers may be erroneously interpreting the "green tag" as a indication of product safety. Accordingly, EPA, in cooperation with the Consumer Product Safety Commission, will undertake an effort over the next several months to evaluate, using consumer focus groups, how consumers react to and interpret the information provided them under the "green tag" program. If we determine that consumers are misinterpreting the message, we hope to gain insight as to how the message or approach of this voluntary consumer information effort could be improved and then

to share and discuss our findings with the carpet industry.

NEXT STEPS

EPA does not believe that the failure to replicate the Anderson Laboratories' findings proves that carpet emissions do not pose any adverse effects. At the same time, however, we do not have a sound basis for concluding that exposure to carpet emissions present a health risk. Rather, we see two important issues. One is the meaning of the effects reported in Anderson Laboratories' findings, and the other is the reported health problems associated with exposure to carpet emissions. These may be independent issues.

EPA will continue to follow up on the Anderson Laboratories' findings. The next step we will take is to hold a workshop at which all of the scientists working on this problem will have an opportunity to present their findings and hypotheses. Based upon the outcome of this workshop, EPA will determine its next steps. We have already begun to plan this workshop, and to date we have received agreement from both industry scientists and Anderson Laboratories to participate in it. We will hold the workshop as soon as possible, probably in the Washington, D.C. area, and it will be open to the public.

In addition to following up on the Anderson Laboratories findings, EPA intends to continue its efforts to develop better methodologies for detecting and studying the potential health effects of indoor sources. While many toxicology tests are available, most of them were designed to detect health effects which are very different from those associated with most indoor air complaints. Our general strategy is to develop methods which can be used in humans, to be sure that they correlate with the symptoms and signs reported following exposure to some indoor environments. Once we have good methods for use in humans, we will develop animal models of those methods. Such models might be useful for screening purposes. Methodologies we are currently working on include tear film breakup for eye irritation, and trigeminal evoked potentials for sensory irritation. As we

develop appropriate animal models, we hope to apply them to answer questions about the neurobehavioral effects that have been suggested by various scientists as related to indoor air complaints.

In closing, let me again emphasize that the Agency is concerned about the health problems that some people are experiencing from chemical exposures in their home and office environments. As I have discussed, we are committed to investigating what is causing these problems and taking appropriate action, which will include sharing updated information with the public.

Mr. SYNAR. In order to give my colleagues a better understanding of the types of tests that Dr. Anderson performed, the subcommittee has edited down a video tape summary of those, and we will play the tape at this time for my colleagues. Dr. Anderson would you like to describe what we are seeing as we go through it.

Dr. ANDERSON. I would be glad to.

[The video tape is filed for the record in the subcommittee office.]

Dr. ANDERSON. What we are looking at first is our laboratory at the time when the EPA came to our laboratory with their equipment to replicate the studies and to learn from each other what particular tricks of the trade there were, if any.

First, we have a technician sealing a carpet into a glass chamber. The chamber will be the home for that carpet for the next 2 days while the carpet is tested. The animals are then positioned in a special glass chamber where they are held in position for respiratory recording, as well as for being exposed to the test atmosphere. The thing that looks like a made bed is actually a chamber under an insulation blanket.

This is Jeffrey Tepper, who is an EPA contractor, setting up his system at the same time that we are setting up our system. He is at this instant discussing the nature of a mouse with—

Mr. SYNAR. That is an EPA person there?

Dr. ANDERSON. Yes, with Virginia Mosher, who is another EPA contractor.

This is a mouse following an exposure. It actually is not dead but it is showing a what we consider to be a very severe neurological sign. I think that is one of the things you want to take home from these pictures.

The problems that we are seeing are not subtle. They are not hard to find, they are not undocumented. Almost everything that we talk about we have on videotape, such as this.

This animal is very, very severely damaged.

Mr. SYNAR. This is room air that we are talking about?

Dr. ANDERSON. This is room air that has passed through a chamber that contained 3 square feet of carpet. The neurological testing there is being done by the EPA contractor who specializes in neurotoxicity.

Mr. SYNAR. And the healthy mouse hangs on to the wire?

Dr. ANDERSON. The healthy mouse has no interest in staying upside down and comes to the top of the wire rather quickly without falling off or being confused.

Mr. SYNAR. That is not a healthy mouse there that is going to fall.

Dr. ANDERSON. Now we are looking at a mouse and its ability to right itself from an awkward position. The damaged mouse is going to fall from the jar.

Mr. SYNAR. Those are standard tests, Dr. Anderson?

Dr. ANDERSON. Yes, they are. We are following EPA doctrine here for these tests. I am sorry. The jar itself is not an EPA test, but it is the EPA doing it. The rest is EPA standard.

Mr. SYNAR. These are the results that EPA found in your lab, Dr. Anderson?

Dr. ANDERSON. These are the studies that the EPA was doing in our lab at the time we were doing the same. We were running in

parallel, and both teams got as close a set of data as one can imagine for a bioassay. The animals are positioned in this holder four times.

When we take the animals out, we look at them with care as you can see. The abnormal tracing on the left indicates that the mouse, and this is an EPA tracing, the mouse is in severe respiratory difficulty and probably is not likely to survive. The observation of animals is a very, very time consuming and very careful procedure.

There is a formal checklist which we use to be sure that we have looked at every aspect that we need to, that we have recorded all of the information that we are able to find from this observation.

The next video is from the studies, the double blind studies which we conducted in our laboratory while the EPA was simultaneously conducting them in their laboratory.

Here are the results—

Mr. SYNAR. Now those are the same tests EPA ran where there were no problems?

Dr. ANDERSON. Right, the EPA found no neurological problems. They have subsequently found respiratory problems, but at that time they did not. They found essentially the cleanest mice you would want to find, so that we clearly were not doing the same study.

This animal has become hyperactive as a result of—

Mr. SYNAR. That is a sick mouse?

Dr. ANDERSON. This is a very abnormal mouse. He is unable to—I am not sure what word you want to use. The EPA calls this popcorn. He jumps up into the air. He runs off corners. He doesn't hold on to anything.

He has apparently lost his marbles. This mouse did not survive in our test. As you can see, he was rather difficult to photograph because he was never there.

One thing that is very unusual and common with these tests is that the group of animals will give us a variety of different responses. The one animal was incredibly hyperactive.

Another animal in the same test would be hypoactive, it would fail to do anything, it would not move when pushed. Here is an animal that—

Mr. SYNAR. Like that one.

Dr. ANDERSON. Simply doesn't want to be a mouse, doesn't want to be anything at this moment. So that in the same test we will have very dramatic results from several mice, but they will be divergent results.

This animal is showing a very unusual hypersensitivity to touch. Every time you come in contact with the mouse or the mouse is touched by another mouse, it will jump, it will run away, it will be very, very sensitive.

Mr. SYNAR. Stop the tape right there.

Now the Chair will recognize himself for a brief 5 minutes, and then we will start moving through questions to establish for the record where we are going with this.

Dr. Anderson, let's talk about your testing method and your work on the carpets. How long have you been testing carpet samples?

Dr. ANDERSON. We have been working on carpet samples for just over 1 year.

Mr. SYNAR. And have you tested other things beside carpets? What kind of things do you test?

Dr. ANDERSON. Our basic interest is indoor air and we look at any kind of product which could contribute to indoor air through off gassing. We have looked at wall coverings, we have looked at paints, grouts, adhesives, materials which are in common use inside.

Mr. SYNAR. Have you tested things like magic markers?

Dr. ANDERSON. We have indeed, yes.

Mr. SYNAR. OK.

Now, do you see the same kind of extreme effects that you found with carpets when you tested them?

Dr. ANDERSON. When we test something, especially like a magic marker, like perfume, we choose it because we have heard some people comment, I don't like that smell, this causes me problems. We often see that the off-gassing from the common products where people complain about the smell do cause sensory and pulmonary irritation on occasion.

We virtually never see an animal die, nor do we expect to see any neurotoxicity. I think we have seen two deaths that were not related to carpet toxicity.

Mr. SYNAR. Now, you tested 300 times, 200 have been used carpets, so you have tested both old and new carpet?

Dr. ANDERSON. We have never looked at carpet that is strictly from a mill. The oldest carpet we have looked at is 20 years old. There was not a qualitative difference between them.

Mr. SYNAR. There wasn't a difference between the old and the new?

Dr. ANDERSON. Not that one could pick up on. There is not a difference in new and old that you found to be consistent.

Mr. SYNAR. Now, you have not always found that every carpet sample causes problems, have you, as the critics have accused you?

Dr. ANDERSON. Certainly not.

Mr. SYNAR. And speaking of the criticisms of your work, you do run control tests on a regular basis throughout your laboratory?

Dr. ANDERSON. We are very, very alert to the importance of control tests. We run up to five each week and if we are doing a special new protocol, we probably spend 1½ weeks running control tests and then 2 days running the experimental tests. So we are very careful.

Mr. SYNAR. And your mice don't die on a regular basis like they did during the testing of the carpet, do they?

Dr. ANDERSON. Our mice are prepared to go on with this procedure for weeks if necessary, unless we give them a carpet.

Mr. SYNAR. Now, Dr. Anderson, to a nonscientist like myself and others on the panel, it would indicate that the test method itself is not killing the mice. We want to make sure that some other agent in the laboratory didn't cause these problems.

Do you go through a lot of precautions to make sure that is the case?

Dr. ANDERSON. We are extremely careful and one of the reasons that we are able to do this fairly effectively, I think, is that most things which could get into a laboratory, if they are going to have

an effect on the mice, will show up very quickly when we do these comprehensive respiratory recordings.

There is a base line and a control before every study. If the animals show any sign of abnormality, we either get rid of the animals or scrap the study and clean up and start again. That has happened on occasion, so that we are very aware of the possibility that there is something that could enter a laboratory.

We are alert to it and we take all of the precautions every day that are necessary.

Mr. SYNAR. Dr. Alarie, that is the kind of precautions you would take and recommend?

Dr. ALARIE. Yes, it will be very, very obvious when you are recording your respiratory pattern of the mice, whether they are normal or abnormal. This is very, very easy to see. And we would do the same thing.

Mr. SYNAR. Mr. Hastert.

Mr. HASTERT. Thank you, Mr. Chairman.

As a nonscientist, give me a little background here. Now you say that if there is moisture in the air, humidity in the air, that this doesn't affect the mice as much as if it is very dry air; is that correct?

Dr. ANDERSON. This is I think the most exciting finding we have had in a very long time. We have—

Mr. HASTERT. Is that correct, yes?

Dr. ANDERSON. If there is no moisture in the system, so it is not just the air, the air or the carpet, if both of those are dry, then we will see the full measure of the toxicity, of the neurotoxicity.

If either of those is wet, the mice will be protected.

Mr. HASTERT. So it could be the mucus lining. If we are in a dry room in the winter time, our respiratory system becomes irritated because there is not mucus in the air. Now, when you prepare this carpet, do you—you say a 70 degrees Fahrenheit.

For us nonscientists again, how hot is that? Is that 150 degrees or what?

Dr. ALARIE. 159. That is pretty hot, that is what you would have in a sauna, if you go to a gym and exercise.

Mr. HASTERT. So if you go to a sauna, you don't stay in there for more than 12 minutes, 15 minutes, so if you are exposing the mice to a couple hours of the mice—

Dr. ALARIE. No, no.

Mr. HASTERT. How long?

Dr. ALARIE. They are not exposed to 150 degree Fahrenheit. The carpet is held in an aquarium which is at 159. The air from the—I am sorry. The air from the aquarium, the air is at 159 in the aquarium.

The air then comes out of the aquarium and goes into the exposure chamber where the mice are. This chamber is at room temperature.

Mr. HASTERT. So the air is cold; is that right?

Dr. ALARIE. That is right.

Mr. HASTERT. Air conditioned?

Dr. ALARIE. The air is cooled, and if it contains a lot of moisture, it will condense on the wall of the chamber.

Mr. HASTERT. The carpet is cooked and not the mice then in a sense?

Dr. ALARIE. That is correct, you try to volatilize the chemical from the carpet by applying heat.

Mr. HASTERT. The air is air conditioned?

Dr. ALARIE. No, the air is not air conditioned. Simply there is enough space and wall between the aquarium leading to the carpet and the exposure chamber where the mice are for the air to cool by itself.

Mr. HASTERT. 100 feet; 200 feet?

Dr. ALARIE. No, no. In my system, it is probably about 8 inches.

Mr. HASTERT. Oh, 8 inches. So this air, it is 170 degrees, 159 degrees, 169 degrees, goes through this chamber and then in 8 inches it is cooled.

How fast is that air moving?

Dr. ALARIE. It is cooled to 75 degree, right.

Mr. HASTERT. How?

Dr. ALARIE. Simply by radiation.

Mr. HASTERT. Wait a minute. How fast is this air moving through the system? I see a pump. You pump air and move air. Does it take 10 minutes for that air to move through that 8 inches or does it take 10 seconds? How long?

Dr. ALARIE. The residence time in that chamber is 7.2 seconds.

Mr. HASTERT. That air is moving out pretty quick?

Dr. ALARIE. That is correct.

Mr. HASTERT. I mean there is a lot of hot air around this place and it doesn't cool down very quickly. So I mean that air—

Mr. SYNAR. And it doesn't move as quickly either.

Mr. HASTERT. No. And so anyway, that could be pretty hot air coming in there.

Dr. ALARIE. No, it isn't. When there are—

Mr. HASTERT. Do you measure the temperature of the air?

Dr. ALARIE. Yes, the chamber is measured at all times. I mean it would be foolish not to make that kind of measurement. Air has very little heat capacity. May have more heat capacity in Washington, DC, than in Pittsburgh, but I assure you that it does cool very quickly.

Mr. HASTERT. The humidity varies.

Dr. Alarie, let me ask you another question. How do you make sure that these little mice have got their noses in there breathing this stuff? How do you do that?

Let's ask the doctor. It is her experiment.

Dr. ANDERSON. Oh, the mouse is placed in a tube. There is a hole at the head end which is the appropriate size for a mouse to put its head through. There is a neck seal around the hole, a flexible membrane which is made actually from dental dam material.

Mr. HASTERT. Pardon me?

Dr. ANDERSON. Dental dams, the things dentists put in your mouth when they don't wish to look at all your teeth. It is a very flexible latex material. That is around the—

Mr. HASTERT. Kind of a noose type object?

Dr. ANDERSON. It fits appropriately for the mouse, mouse neck size. You can tell if it is too tight because the respiratory rate of the animals goes down immediately if it is not a proper fitting

dam. We review all of our experiments for respiratory rate during the base line to make sure that we have a system which will not have an impact on the mice themselves.

Mr. HASTERT. And of course when that mouse has this unpleasant air going by its nose, it must stand there. Does it kind of wiggle and try and get out of it?

Dr. ANDERSON. Occasionally, yes. And we have a few carpets where the activity of the animals becomes extraordinary, so we seem to have some neurological factors.

Mr. HASTERT. They struggle to get out of there?

Dr. ANDERSON. On occasion, that happens.

Mr. HASTERT. Dr. Alarie, is that how you secure your mice, too?

Dr. ALARIE. Yes, the mice are being held in a tube and they will try to escape naturally. You will see escape movement as you are recording respiration at frequent intervals, and this is quite normal for a mouse to do, sure.

Mr. SYNAR. The gentleman's time has expired on this round.

Mr. Sanders.

Mr. SANDERS. Thank you, Mr. Chairman.

Dr. Anderson, peer reviews have raised the question about your handling of the blind testing at your laboratories. Basically, let me ask you a simple question, did you break the blind, and if so, why and how?

Dr. ANDERSON. That is a very direct question. We certainly did not break the blind. I think it is appropriate to mention that the CPSC did break the blind, and in fact they sent labeled box or boxes to the EPA.

The peer review committee has found that the possibility of breaking the blind was very great and under those circumstances I think it is unfortunate that the EPA did not simply abort that study. I do not know whether we got a marked box or not, but we certainly did not see it.

Mr. SANDERS. Dr. Anderson, the EPA was asked repeatedly and specifically to replicate the work that you had done. In other words, we wanted to know whether the many, many experiments you had done were valid or not.

In your judgment, did the EPA replicate, exactly repeat in every way, the work that you have been doing over the last year?

Dr. ANDERSON. They did not exactly repeat our work, no. It is appropriate to say that we do have something of a black box here and it is hard to know what exact means. It is a very difficult proposition, but no, they took some liberties because they thought they were able to make more precise measurements or perhaps better science. And it did not work out.

Mr. SANDERS. Dr. Alarie, as the chairman indicated, there are no scientists up here; I certainly am not one. But how long have you been involved in toxicological work in this area?

Dr. ALARIE. Thirty years.

Mr. SANDERS. The bottom line is some people are auguing it is off the wall, it is not good science.

In your judgment, is Dr. Anderson a reputable scientist? Is her work important and credible?

Dr. ALARIE. I have no problem with the work that I have seen. I cannot vouch for all her work. I would not try to do that. She sent me a carpet sample and I reproduced her result.

I sent her two carpet samples, she reproduced my results. I was at her laboratory and I observed very severe neurotoxicity there on the animal while I was there. I looked at her chart recording on respiration. You cannot argue with her chart recording. It is there. It is written. It is a permanent record. Anyone can see the difference between normal and sensory irritation or pulmonary irritation. So what I have seen is fine. I have no problem with it.

Mr. SANDERS. Thank you, Mr. Chairman. This issue is obviously not a new issue to you.

Mr. Kimm, this issue is obviously not a new issue to you. I would not shock you, I think, if I were to give you documents from the workers at EPA headquarters who are extremely frustrated and dissatisfied with how the EPA dealt with the health crisis in their own building. I would not shock you if I showed you those documents.

Mr. KIMM. Right.

Mr. SANDERS. After all this work I think the bottom line is we still cannot prove and we still have no evidence there is a relationship between carpets and EPA's work.

Mr. KIMM. Yes.

Mr. SANDERS. I would like to ask you a question. I don't have that \$600 million budget. For the guests out there who think that all Congressmen have all kinds of money. We don't have it, really. I had one assistant working on this project over the last number of months. I have made contact with Dr. Worrell, a physician in Arkansas, who says he is concerned about the effect of chemicals in new carpets on his patients' health.

Has EPA talked to Dr. Worrell to get his view as to why he is concerned about carpets and human health?

Mr. KIMM. Not that I know of.

Mr. SANDERS. My office talked to Dr. Rap, who said she treated a large number of children from all over the United States who can no longer attend school because of the effects of carpets. Have you talked to them?

Mr. KIMM. I don't believe we have talked to any of the physicians.

Mr. SANDERS. Dr. Rea in Dallas, TX. Says that many of his patients have been made ill by the fumes emanating from new carpets. Obviously, EPA in its vigorous pursuit of this issue has talked to Dr. Rea, have you?

Mr. KIMM. As I have said, we have not talked to the physicians.

Mr. SANDERS. My question is a simple question. The people of the United States depend on your agency to protect us from environmental degradation. My office, with one assistant, has talked to at least five physicians who are very clear in their view that carpets are causing health problems to their patients. How many physicians has your office talked to who share those points of view?

Mr. KIMM. The notion of talking to individual physicians on their points of view may be indicative of a problem, but it doesn't deal with trying to deal with the kinds of causation that is required under our statutes to take regulatory action.

Mr. SANDERS. You mean despite the fact that there are physicians all over this country who, based on their clinical work with their patients, believe very strongly that their patients are becoming ill from exposure to carpets, EPA has not talked to one of those physicians.

Mr. KIMM. We will be happy to contact the people you mentioned, but it is not an unusual phenomenon in which a physician in his or her clinical practice will see a situation that he or she believes is real.

Mr. SYNAR. The gentleman's time has expired.

Mr. Hayes.

Mr. HAYES. I have been listening to this and thought about my friend, Billy Broadhurst, who was a famous Louisiana lawyer who made Gary Hart an overnight sensation. He had a motto behind his desk that said "When something confuses you, look for the money."

In this instance, listening to the testimony of EPA and reviewing some of the records coming from carpet manufacturers, it is pretty easy to make the accusations of the former district attorney that the carpet manufacturers have an ax to grind because, after all, they are manufacturing this stuff and, if it has levels of toxic materials, then that is going to be a problem. But then you have to jump to why it is a problem; because they are going to get sued. That is what disturbs me about the other side and looking at objective science. You cannot sue God because a room full of air is causing a health problem. If you cannot pin it down to a deep pocket with a lot of money, you cannot recover.

I am wondering when EPA contacts these folks, I wonder if my Subcommittee on Science, Space and Technology might be interested if some of the doctors defending the plaintiffs' cases. I wonder if that is objectivity or whether they are paid. I think that is the question that deserves pursuit and it is nonscientific.

I would no way in the world suggest that there is anything wrong, right or different about Dr. Anderson's facility. But it appears to me that the obvious thing we should be doing, since we have EPA side by side in her lab. We ought to have the objective peer review that takes place in almost every other kind of scientific determination.

In that regard, my thought is to suggest to my committee staff to get all those materials from Dr. Anderson and see if we can't put them in the hands of people who are not paid by anybody so you folks sitting in the audience can determine what it is that is a risk to the people of the United States. I think that is a process we have jumped past at the hearing today with no condemnation on my part of any one sitting at the table. I am not a scientist. I have no way to judge it or measure it. But as a person who has seen so many environmental issues have a scientific basis where the basis is not subject to review, this is, to me, one more of them.

There are differences in the laboratory. This is an area I am not familiar with, but I will ask the gentleman from EPA, isn't there a certification of toxicity, of laboratories that do toxic analysis? Isn't there a certification of laboratories that provide it to anyone?

Dr. DYER. There are a number of types of certification. I think there is a laboratory animal care certification.

Mr. HAYES. If you are doing tests, are there various certifications that your laboratory standards are sufficient?

Mr. KIMM. There are good laboratory practices that are a prescribed set of requirements and recordkeeping.

Mr. HAYES. If laboratories are making judgments and calls that rely upon analysis, can they be in anybody's backyard? Don't you have standards that say this lab is a lab and we know that outside influences—

Mr. KIMM. There is no national single laboratory certification program. There are a number of different certifications that take place by professional organizations.

Mr. HAYES. What certification does your laboratory have, Dr. Anderson?

Dr. ANDERSON. We are certified by New York State and New York City for a particular type of toxicology testing. In general, the certification is something which is pursued by laboratories who are doing regulatory studies, work that is going to be submitted in support of product registration. It is not something which one goes after in a research mode.

Mr. HAYES. I assume the laboratory is privately owned by you?

Dr. ANDERSON. Yes.

Mr. HAYES. I know how EPA is funded. EPA has \$36 billion. How is your laboratory funded?

Dr. ANDERSON. Our laboratory is funded by our clients.

Mr. HAYES. In other words, those who bring tests to you. Those are mostly folks who are worried, I assume, about the same things I have said, whether there is a causal relationship here?

Dr. ANDERSON. We have done work for manufacturers, trade associations, and individuals, and we do some on our own because we wish to know how certain products would compare in our data base.

Mr. HAYES. Have you ever been sued?

Dr. ANDERSON. Not yet. I expect to be involved in two.

Mr. SYNAR. The gentleman's time has expired on this round.

The gentlelady from Florida, Mrs. Thurman, for 5 minutes.

Mrs. THURMAN. I would like to go back a little bit to the testing, particularly because it seems to be where there are some discrepancies between all three of you in one case or another. Dr. Alarie, in your findings you came up with C, D, Z all coming up with exactly the same results. Where you varied was on Y.

Dr. ALARIE. That is correct.

Mrs. THURMAN. Do you know why?

Dr. ALARIE. I don't know why. I wish I knew why. All I can tell you right now are the results and they certainly are not in agreement.

Mrs. THURMAN. Then maybe to Dr. Dyer or Mr. Kimm, did you find the same results in Y as Dr. Alarie? Or did you do the same testing?

Dr. ALARIE. EPA and my laboratory agree for carpet Y.

Mrs. THURMAN. What about on the other carpets?

Dr. ALARIE. I don't know. I don't know what else EPA has done.

Mrs. THURMAN. Dr. Anderson, can you give us a reason why you think this has happened?

Dr. ANDERSON. Well, as I said, I am focusing wonderfully on the question of the effect of water on this, I hope, water soluble chemical. The carpet in Y, which we sent to Dr. Alarie, we received probably 6 months ago from an individual with a severe complaint. It happens to have then been separately collected by the CPSC and put into this other study. We had it from a previous source, the same person, but a previous collection process. We had it stored outside during the winter and we have tested it at intervals. One time when we tested it, we also got no particular effect.

The other times when we have tested it, it has been very, very potent. This is one of the very difficult problems that we are dealing with because you cannot count on all portions of one of these products to have exactly the same composition and the same effect on the animals. Whether it is a storage problem, a humidity problem or a different one to start with is something that we cannot judge yet.

Mrs. THURMAN. Since C, D, and Z did not seem to, there was no death, have a sensory effect, let me go back to the questions raised about the constituents within the carpeting. Did we find anything similar in those as to C, D, and Z that was not in Y or that was in Y that was not in C, D, or Z? Is there a chemical reason here that there is some scientific data that we can look at that shows some of these constituencies? Any one of you?

Dr. ALARIE. The answer is there are data, but you will not find the answers in those data. From what I have seen, the chemical analysis on carpet, you may pull 150 or 200 different chemicals present in volatile carpet emissions. There is a big difference from the first time you use the piece of carpet to the second time and the second day, et cetera.

The other thing is that what you find is basically what the analytical chemist has decided to look for using a particular analytical method. So if you have 100 chemicals that doesn't mean there are only 100 chemicals there. There may be another 400, for all I know.

Mr. KIMM. If I might, we did, in fact, have people in Dr. Anderson's laboratory and did see the death of the mouse very early in the process. That was in early January, if I remember correctly, which was one of the reasons we were very optimistic when we got to replicating independently in a different laboratory, that we would see those same effects.

In addition to replicating that, as Dr. Anderson indicated, we have done some additional work for the actual test samples from CPSC both looking at chemistry and bacteriological things and they were not remarkable. We did not see anything in the chemistry or bacteriology that might be a potential cause of problems. That is part of the dilemma here. But the work that we have done was subjected to independent science review. That is what peer review is, independent scientists review at the start before we did protocol.

We all agreed on the protocol. The same people came back and looked at the test data we produced and all the quality control and all the things that went into that. We would be happy to provide the committee with their written comments.

Again, I think we will stand solidly behind the science that we perform, and don't have an answer for why there is this significant difference.

Mr. HAYES [presiding]. Since I have taken over as committee chair, that makes it incumbent upon me to do exactly as I am told. In accordance with that I will call on Mr. Mica.

Mr. MICA. Thank you. Well, I am glad to see the chairman back. I am delighted to compliment him on holding this hearing. Actually this hearing and Dr. Anderson have really helped me to understand what is going on in Congress because I don't know if you know it, but in the halls of Congress here every time there are elections, and we had 110 new Members this year there is this big game of musical chairs and everybody changes offices.

The first thing they do is put in new carpeting. I have been trying to figure out all the Members' erratic behavior. I think you have solved the mystery, Dr. Anderson. I appreciate you having this hearing, Mr. Chairman.

Unfortunately, I smell sort of a rat in this hearing. I am wondering about the rats in question here, these mice. Are these a special type of laboratory mice? Are these Swiss mice or some special laboratory mice?

Dr. ANDERSON. The mice we use are male, Swiss Webster mice between 25.5 grams and 28 grams. It is a very carefully specified animal.

Mr. MICA. The reason I smell a rat, I thought I would see if there is any record, and I only have from 1987 to 1989, and there is the National Safety Council. This is a record of deaths due to some kind of a substance. Is there ever recorded history of a human being dying from carpet fumes inhalation? Does anyone on the panel know of a single time? This only goes to 1989. Has anybody expired since?

From the record, I find there has never been a human being that has expired.

Mr. SANDERS. Will the gentleman yield?

Mr. MICA. No, not at this time. I am asking the panel. Does anybody know of anyone? I also may have a chart here that shows product comparisons. It shows paints, for example, as having the highest level of chemical releases and carpets having one of the lowest releases. Is that true scientifically, if you are in a room? In fact, I am wondering when your laboratory walls were painted last, Dr. Anderson?

Dr. ANDERSON. Longer ago than it should be. I think it is appropriate to say that the data showing that release of chemicals from carpet is relatively low compared to fresh paint is probably quite true, but it is wonderfully irrelevant. The thing that is very important for us is that some toxic chemicals are very much more potent than others. To simply look at the quantity of chemical does not take into account this very, very important quality of potency. What does the chemical mean to a living animal like us?

Mr. MICA. The living animals we are talking about here are human beings. The Center for Disease Control also said that one in five residents of the United States is allergic to something, has allergic reactions. That is about 20 percent of the population. In fact, 1 percent of adults are allergic to food; 8 percent of children are allergic to milk. Some die as a result of their reactions. Has there ever been a human being who has died as a result of carpet fume inhalation?

Dr. ANDERSON. I think it would be very difficult to know at a time when no one will accept the possibility that people are even sick as a result of carpet exposure.

Mr. MICA. Again, I smell a rat in this hearing. I have been in the cellular business. I saw some of the results of just one hearing, it depressed cellular sales for 2 months. I am concerned that this hearing, based on some laboratory mice that were in an artificial condition in questionable laboratory settings will result in damage to American industry, not to say that there may not be problems here. Thank you.

Mr. SYNAR [presiding]. Thank you, Mr. Mica.

Ms. Pryce.

Ms. PRYCE. Thank you, Mr. Chairman. There certainly is startling information if indeed it is accurate and true. I am concerned, however, that we certainly are alarming the country and perhaps jeopardizing an important industry with very, perhaps, premature conclusions that we might be starting to draw here.

I ask the panel and any of you who may be able to respond, please do. Have we ever autopsied, is it a standard part of this procedure? Do we know what it is that has caused the erratic behavior and the death of these laboratory animals and why don't we, if we have not gone that far?

Dr. ANDERSON. We have done a number of autopsies with these animals. We have not done enough that we can point to a cause or a problem. It is a very difficult thing to learn cause of death through autopsy. If the death happens too quickly, if it happens during or immediately after the exposure, if you do an autopsy and, if you make slides and study the tissues, there has not been enough time for changes in the tissues to show, so that you have done the work without finding the cause. It has not happened yet. The animal is already dead. So it is very difficult to use that as an investigative tool.

The thing that we have been trying to do up to this point has not been to find the cause, to unravel the pieces, but to establish whether or not there appears to be a problem. If we can get through step one and say, yes, it looks like we have a problem, then we are free to go on to the next step which says, all right let's finds it. Let's understand it. Let's study various components of the system. Let's begin to find out how the biology and the chemistry interact. We have not gotten to that step. We are still, as you can see, very concerned in the process of demonstrating that this effect can, indeed, be a real one.

It is a very difficult chore to make a convincing argument.

Ms. PRYCE. Let me ask this: What would be the explanation of any member of the panel here to us that these tests have been inconclusive and that EPA has not been able to duplicate them? Mr. Kimm, do you have any way to explain that or any thoughts about what you think may have been the difference here?

Mr. KIMM. I don't think I have an explanation as to why there is a difference. I would say that in the protocol that we had, we would have autopsied if we had seen any fatalities. We would have done the standard pathological work up to see if we could see an affect. Since we did not see any fatalities, we obviously did not conduct autopsies.

Dr. DYER. We did not do autopsies on animals that had died, but what we did do as part of our process, we thought if animals were sick we might be able to see something in autopsy material, so we, in fact, sacrificed the animals at the conclusion of the study and did a complete work up on them both pathologically and in terms of their serum chemistries and did not see any indication of disease in those animals that was attributable to carpet.

Ms. PRYCE. Back to the next question, Mr. Kimm. You have to have some thoughts about why the results couldn't be duplicated. Do you care to share this?

Mr. KIMM. I would probably direct you to the peer review panel. Bob, do you want to take that?

Dr. DYER. This is really a problem for us because we tried very hard to identify every factor in the tests before we did them in parallel with Dr. Anderson in our laboratory. We, at this point, don't have any compelling hypotheses to explain the differences, although the peer review reports that came out of our peer review effort did make some suggestions which we will followup on.

Ms. PRYCE. Those being?

Dr. DYER. The primary suggestion was to go to Dr. Anderson's lab, if she is willing, and I believe she has indicated that she is, and try to study there, in as much detail as we can, the conditions of her laboratory that may be different from ours.

Mr. SYNAR. The gentlelady's time has expired for this round.

The Chair recognizes himself for 5 minutes. Now, Dr. Anderson, we sent you a sample of some carpet to be tested in your laboratory. Did you bring it with you today?

Dr. ANDERSON. Yes, I did.

Mr. SYNAR. Did you recognize the carpet or where it was from?

Dr. ANDERSON. No, I did not.

Mr. SYNAR. Did the subcommittee staff at any time tell you where it was from?

Dr. ANDERSON. After the testing was completed I was informed of where it came from.

Mr. SYNAR. What were the results of your test?

Dr. ANDERSON. We tested this carpet three times, the first time at room temperature and we saw a fairly slight to moderate neurological effect on some of the animals. The second time we heated the carpet so that the face fiber was about 70 degrees C and the backing was 45 degrees C. We had pulmonary irritation, I believe, sensory irritation, neurological problems and one animal died the day after the exposure was completed.

Mr. SYNAR. Now, do you have this on videotape?

Dr. ANDERSON. Yes, we do.

Mr. SYNAR. Why don't we look at the videotape and you can explain what is going on in the experiment.

[Videotape played.]

Dr. ANDERSON. At first what we are looking at is two animals on an observation shelf. They are giving you a picture of what a relatively normal mouse is going to be doing. Here is a mouse wandering around on the top of his cage. I am sorry that is on a screen. He comes over the edge. These are—

Mr. SYNAR. Healthy mice?

Dr. ANDERSON. Healthy mice. This would be the pretesting scoring. Now, the animal is showing his ability to hang on to the jar and perhaps turn himself over. This will be an exposed animal who has entirely lost his normal mouse-like reflexes. He is not walking. He is not holding on. The animal is, by the end of the third and fourth exposures, practically comatose and dies the following morning.

What you have difficulty seeing here, this is the checklist we use for observing the animals and the recording machine is giving us immediate read out of all of the respiratory activity of these animals. Three of them were relatively normal. One was very abnormal.

Mr. SYNAR. I think that is all we need on the tape. Could you tell us what period of time was actually covered by the events we just saw on the tape?

Dr. ANDERSON. That test would have been over a 2-day period last week.

Mr. SYNAR. Were you able to determine what toxic agents or agents might have been in that piece of carpet which could explain the mice dying?

Dr. ANDERSON. Again, we don't look for specific chemicals. We don't have the ability, and it is not our major focus. However, we have tried to find out whether this instance we are looking at is a water soluble material.

Mr. SYNAR. So you don't usually do extensive chemical analysis?

Dr. ANDERSON. We do the bioassay. Many other people are capable of doing the chemistry so that is not where we focused.

Mr. SYNAR. Dr. Anderson, for the record, let me show you the carpet we gave you. This is a piece of carpet sent to us by the House furnishings office, sent to us at our request by the House Administration Committee. It was taken from an unused portion of carpet which is now installed on the floor of the House Chamber. It is over 10 years old. Is it surprising that a piece of carpet so old could contain enough toxic substances to kill a mouse?

Dr. ANDERSON. Unfortunately it is not surprising. We have tested a number of carpets over 10 years old which have been in storage or have been used during that period of time. Some of them have been very potent.

Mr. SYNAR. That might explain, as Mr. Mica said, some of the behavior of our colleagues at times.

Mr. Sanders.

Mr. SANDERS. One of my colleagues asked earlier if there had been any deaths attributed to carpets. I would refer him to the petition brought forth by Robert Abrams, attorney general of the State of New York, page 8, where a male died of "unknown causes while using a contact adhesive to apply carpet to the inside of a boat in a closed garage."

Dr. Alarie, the question I would like to ask you is, in your judgment are there dangerous toxic chemicals in the carpets that we purchase?

Dr. ALARIE. I cannot answer that question. I have seen lists of chemicals, as I mentioned, with something like 100 chemicals being emitted from a carpet. I would say 75 percent of those chemicals I know nothing about and nobody else knows anything about.

Mr. SANDERS. What about styrene, benzene, toluene?

Dr. ALARIE. We know about them. They are quite well-known chemicals. The problem with those, if we are looking at those as being the possible cause of the effects that we are seeing, the amount that is emitted is too low as far as using standard toxicology of looking at each individual chemical, there would be in parts per billion. If you ask the toxicology communities, their reaction would be, no, there is no evidence that we could even come close to blaming styrene or toluene or benzene for the death of these animals or even the combination of these three at the concentration that is there.

Mr. SANDERS. I suspect many of the Members know a lot about carpet manufacturing and the carpet people will help us out on this later. In your impression, is carpet manufacturing a precise process? In other words, does every batch of carpet that comes out have the exact same chemical composition, or might there be certain batches that might be different from other batches.

Dr. ALARIE. It looks to me like certain batches are very much different than other batches. We were supposed to test the same carpet, it is called AT-3 carpets. Someone from DuPont started doing chemical analysis, total volatile organic from the same carpets, but they were different pieces of the same carpet and we just don't get the same answers, so if you start with a product which is not uniform to begin with and you try to duplicate test results across the laboratories, I think you will run into certain difficulties.

Mr. SANDERS. So it is conceivable that one batch will have a different chemical composition than another batch?

Dr. ALARIE. Yes, definitely. As you make the carpet, remember, you are applying a liquid latex. This goes into an oven. It is like baking a cake.

Mr. SANDERS. Ninety percent of the product could be one way and 10 percent could have more chemical in it than the rest.

Dr. ALARIE. Yes, sure is.

Mr. SANDERS. Let me ask you, Mr. Kimm, I think this gets to the heart of my concern with the role of EPA. The Consumer Product Safety Commission has received 6,000 calls in the last 7 months. That is a lot of calls. I have indicated to you that there are physicians all over this country who believe carpets are causing health problems for their patients. You yourself will acknowledge that there are over 40 EPA workers today who believe they were affected by indoor air quality and by carpets and who cannot go into their office. Yet after all the work that you have done, you see no link between carpets and health.

I have to ask you a simple question. Are all these people—and I expect thousands more around the United States—are they hysterical neurotics? Are these people crazy? Are they trying to get money from lawsuits? Is that what is going on? Or, in fact, is the EPA not doing the job in trying to understand and go to these patients and these physicians in terms of understanding what is causing the problem?

It has got to be one or the other. Either these people are crazy, liars, or, in fact, they are suffering terrible problems and the EPA has not done an effective job in investigating that. How do you respond to that?

Mr. KIMM. I don't see the link up. Certainly there are people who are suffering. We are very sympathetic to that. If we knew how to deal with the problem we would. That doesn't necessarily convert to saying the evidence is there and we are not reacting to it.

As I indicated to you earlier, in this case starting last fall when we saw the opportunities to possibly get a specific ability to identify a link between the adverse effect in the mice and the source, the carpets, we devoted a significant amount of effort trying to get at that problem. That is the route that we would pursue and will pursue. That is where the science will take us. That is the route we are trying to go.

Mr. SANDERS. In a few moments, we will hear from somebody who will tell you that she and her children have suffered terribly. There are many, many people throughout the country who are relating similar experiences. Your position, the official position of the EPA is that you don't know a link, a connection between carpets and health so one of two things is going on. Either these people are off the wall and their suffering is imaginative or else the EPA has missed the ball in pursuing this issue. I don't see the alternative here.

Mr. KIMM. I don't think I agree with your analogy. We have great sympathy with the people who are experiencing problems, but we don't know the cause and therefore we are not in a position to do anything about it.

Mr. SYNAR. The gentleman's time has expired.

Mr. SANDERS Thank you, Mr. Chairman.

Mr. SYNAR. Mr. Hastert.

Mr. HASTERT. Very briefly, Dr. Anderson what is your training?

Dr. ANDERSON. I have a Ph.D. in human physiology from Yale University and I have spent 3 years with Dr. Alarie at the University of Pittsburgh where I learned to think more like a toxicologist.

Mr. HASTERT. So you have had a relationship in the past.

Dr. ALARIE. You will see in my statement that she worked in my laboratories in the late 1970's.

Mr. HASTERT. Have you ever received formal training for behavior observation?

Dr. ANDERSON. We spent 1 week working with Ginger Moser, a contractor with the EPA, who supervised our use of their functional observation battery for evaluating these effects in this kind of exposure system.

Mr. HASTERT. So you have had 1 week with the EPA?

Dr. ANDERSON. Yes.

Mr. HASTERT. How did you come about doing these experiments with carpet? Were you commissioned by someone to do them?

Dr. ANDERSON. We were very concerned in our lab that emissions from a variety of common commercial problems are contributing to indoor air problems. That is where we started, with indoor air. So we started looking at problems which people have put on lists. EPA has a list of things they think are interesting.

Mr. HASTERT. Like mattresses.

Dr. ANDERSON. Carpets, wall coverings, Xerox machines.

Mr. HASTERT. Curtains?

Dr. ANDERSON. I believe that is on their list, yes.

Mr. HASTERT. You are not a government entity. Your lab is not a government entity at this time, right?

Dr. ANDERSON. No, it is not.

Mr. HASTERT. It is a private entity and it has to be funded. So you were not commissioned to do this? It was just self-interest?

Dr. ANDERSON. In trying to have something to sell for laboratory purposes we chose some products to study to demonstrate that our techniques were capable of showing what was interesting.

Mr. HASTERT. Where do you sell your services?

Dr. ANDERSON. To trade associations, to manufacturers, to consumers and to large businesses, GE, for example.

Mr. HASTERT. You mentioned a little while ago that you tend to be a witness in a trial situation. Is that correct? You said you hoped to be involved in two.

Dr. ANDERSON. I didn't say I hoped to be. I said I expected to be. It is quite different. I have been in two trials on other subjects?

Mr. HASTERT. Testifying on toxicity materials?

Dr. ANDERSON. That is right. I expect I will be testifying in, I think, two trials with regard to carpets.

Mr. HASTERT. As an expert witness?

Dr. ANDERSON. Yes, sir.

Mr. HASTERT. The gentleman from EPA, Mr. Kimm. Have you done studies on curtains. My wife says she can't go to a curtain store, that it bothers her. She doesn't complain about carpets.

Mr. KIMM. I don't think we have done toxicology studies on curtains.

Mr. HASTERT. Any other products, like mattresses?

Dr. DYER. We have not done toxicology studies on any other indoor products.

Mr. KIMM. Our basic approach for the last couple of years in dealing with indoor air was, one, to try to concentrate on the list Dr. Anderson referred to, and the other is deciding methods. How do you measure what the emissions are and how do you validate that you know what it is that you are looking at. That has kind of been the principal thrust of our ongoing research.

As I explained earlier, we removed the carpets last fall after we learned of Dr. Anderson's significant, gross—however you would characterize it, significant findings.

Mr. SYNAR. Mr. Hayes.

Mr. HAYES. Mr. Chairman, since you ran it so smoothly I don't think I will go to a second round. What I said the first time was covered in different areas.

There is one thing. Have there been tests, Dr. Anderson, where you have tested anything else that resulted in the killing of the laboratory mice or rats?

Dr. ANDERSON. Yes, indeed. We have tested a particular contact cement which was very potent.

Mr. HAYES. But that is all carpet related. In other words, you have not done any other items commonly found in proximity to people, mattresses, curtains, anything, any commonly used items that have resulted in the death of laboratory animals?

Dr. ANDERSON. I believe there was one mattress test where an animal died so we have a contact cement and a mattress, I believe.

Mr. HAYES. The point I am getting at goes to objectivity. Obviously people are surrounded by a multitude of other things. Is there any one you know who is doing the testing of known items other than your laboratory?

Dr. ANDERSON. Biological testing is not a common phenomenon. It is difficult to do. We do not have many laboratories that focus on the bioassay of almost any consumer commercial product.

Mr. HAYES. Thank you.

Mr. SYNAR. Mrs. Thurman.

Mrs. THURMAN. Obviously the thing we need to figure out what we are going to do to protect consumers and to find out what it is that we might be able to do in the future. Maybe Dr. Anderson and the EPA can give me an idea of what is in the future for testing, what kind of things you are going to be doing, what kinds of things you might be able to find out so that we can help the manufacturers. I don't want to always be at somebody's throat without having the opportunity to give them suggestions as to what might be better, what chemical balances might work out where there may not be the toxicity.

Dr. ANDERSON. I have two things in mind which I think are important. I believe the clue about the water solubility of our neurotoxin is very important. I hope to get some samples for chemical analysis. This is not the kind of chemical analysis that is routinely done for indoor air quality. So we may find some new information there after we have, as we believe, trapped some of the nasty in the water. If we can have it analyzed, we might be considerably ahead of where we are now. The other thing that I think that is maximally important is to start looking at carpet in large chunks, to look at the face fibers, the backing, some of the components, perhaps some of the additives or surface treatments to find out if one of the chemicals or products that goes into carpets is the site of most of the problems that we are seeing.

If that is the case, it would be very easy to identify, as it were, a bad actor, to allow the manufacturers to simply substitute product A for product B for a particular carpet function and then we could get on with it. The same with trying to investigate every aspect of every nuance is not an effective approach. It is fun, but it is not effective. It would take us years and years to do it. So I would much prefer to go with looking at large components of the system to see if we can pin down where the problem is.

Mrs. THURMAN. Can we hear from EPA? I noticed in your report that you saw two important issues, the effects of the Anderson Laboratory funding and also the health problems. What kind of studies do you see here?

Mr. KIMM. As I indicated in my introductory comments, we see as the next step a scientific workshop which would get all the data that may be available and to take a group of knowledgeable scientists in the area to go back and say what are the remaining questions that may be asked or perhaps answered from the initial peer review that looked at Anderson's work and our work.

There were some questions raised. There were some suggestions made. I believe there will be other studies that are available that are going to be talked about later today. To the degree that those tests involved the same protocol and samples that data also should

be given some scrutiny and perhaps out of this we will perhaps arrive at a general consensus of the next steps.

Ultimately we need to deal with both problems. We need to decide what more we will do in pursuit, if you will, of the Anderson method and we still bear the responsibility, and I think Congressman Sanders may not agree with that, to sort out the riddle of what is going on and afford higher levels of protection in the future than we presently can.

**Mr. SYNAR.** Mr. Mica is recognized for 5 minutes.

**Mr. MICA.** Mr. Kimm, isn't it true that you spent somewhere in the neighborhood of \$1 million trying to cover the problems that—was it the mall incident there?

**Mr. KIMM.** In my briefing book is the Q and A because I asked the staff what have we spent on this, that says something like \$1 million. My guess is that it is something between \$1 million and \$500,000. There is a lot of senior time and effort in rearranging of labs and scheduling and other research activities that were diverted in order to work on this because we saw it as such a high priority activity.

**Mr. MICA.** At the conclusion of spending \$500,000 or \$1 million, your conclusion, did you have a direct link here of a problem between the carpeting that was installed.

**Mr. KIMM.** I am sorry. Are you talking about the EPA carpeting?

**Mr. MICA.** Yes.

**Mr. KIMM.** In 1988 when we ran into the problem. There was big renovation in the building—carpeting, furniture, some things. Then we had sick people. We spent several hundred thousand dollars doing all of the industrial hygiene things that we could think of to do and with none of those efforts did we find a cause of what made our employees ill.

**Mr. MICA.** They went into this building. Wasn't this defined as a sick building before you started that activity?

**Mr. KIMM.** Probably by the employees in the building. There is not a official designation of a building. It is the EPA main office building here in town. It is an old building and most of the employees are not very happy with it.

I should say at the end of that activity we took the carpet out. We cleaned out the air system for the entire building and did just about everything else we could think of.

**Mr. MICA.** But you never—

**Mr. KIMM.** Never established a causal relationship.

**Mr. MICA.** I understand the carpeting has components of fiber and the backing. As I understand it, the toxic levels or the problems of emissions come from the backing. Is that correct or is it from the fiber in the carpeting?

**Dr. ANDERSON.** It is about time we found out.

**Dr. DYER.** In our laboratory we wanted to find out what were the toxic emissions, but we have been unable to find the toxic effect.

**Mr. MICA.** I am not a scientist, but is it possible to take some backing and test it with rats and then take some fiber and test it with rats? Has that ever been done?

**Dr. ALARIE.** Yes and no.

Mr. MICA. So we don't know what elements we have a problem with. Aren't there different levels of this number 4 PC in different carpeting?

Mr. KIMM. Thought to be the prime area of concern was the volatile organic chemicals, the things that make new carpets smell like new carpets, 4 PC being a prime candidate. Over the intervening few years we have worked with industry both to try to reduce the volatile fraction and we have got some new test data from that particular chemical.

Mr. MICA. Has the industry voluntarily reduced the level? I understand in almost all new carpeting the levels were reduced. Does anyone know that?

Mr. KIMM. There were some joint efforts there. We characterized that as kind of pollution prevention activities; that is, to take reasonable measures to reduce the emissions that might possibly be harmful.

Mr. MICA. The sample that was tested, was that a 10-year-old House carpeting sample, Mr. Chairman?

Mr. SYNAR. Yes, it was.

Mr. MICA. Ten years old so that would not be the same kind of carpeting coming out of the warehouses today. I have been all over the Capitol. There are mice here that flourish. Somehow our mice are surviving. In fact, I found one smashed in the door. The poor thing did not die from the carpeting or political attacks. He had the door slammed on him and he survived. So, we do have them. Isn't it true, too, that people have different allergic reactions to different types of chemicals and substances?

For humans it would be very difficult to test every one of these on every individual. The folks at EPA could never really complete all the possible combinations of tests and personalities, allergies and other human factors, not rat problems, human factors. Is that true, sir?

Mr. KIMM. I would think so. That is that there are different sensitivities to exposures to lots of different things.

Mr. MICA. Sometimes I get sick on Vermont cheese, for example.

Mr. KIMM. That sounds more like a political statement. I would say there are variable sensitivities to a lot of things.

Mr. SYNAR. I might add that it is nice to know that EPA is doing something that Mr. Mica does like. That surprises me.

Ms. Pryce.

Ms. PRYCE. Thank you. I would like to go back, Dr. Dyer, to the peer review and what comments did they make comparing the two studies? I missed some of the other testimony but if you could, please.

Dr. DYER. The peer reviewers focused on the quality of the studies and any followup activities and basically each peer reviewer indicated that they thought that the quality of the EPA study was very high and that, based upon the emissions we measured with our analysis, they were not surprised that we did not see a toxic effect.

Ms. PRYCE. Did they compare the two studies?

Dr. DYER. They voiced some concerns that the quality of the Anderson studies was not as high as the quality of the studies that we did.

**Ms. PRYCE.** In what respect?

**Dr. DYER.** The particular aspects they mentioned were the blinding issue that has been discussed a little bit, and also the quality of the animal care facility.

**Ms. PRYCE.** Dr. Anderson, what conclusions do you draw from the fact that your test has not been able to be duplicated? Do you have any thoughts about that?

**Dr. ANDERSON.** My test certainly has been replicated by Dr. Alarie and by the EPA. I think we did not have a totally parallel protocol. I think we now have an idea where the differential came. Since that study, the EPA has continued to work on these carpets. They have in the interval found sensory irritation from both carpets which they had not seen previously.

In addition, when they described this data to me they described it as a rain forest. There was so much humidity and moisture released by those carpets during testing that the chamber was positively dripping. I think that gives us more reason to follow the clue that we have concerning the protective effects of water with regard to the neurotoxicity.

**Dr. DYER.** May I respond to that?

**Ms. PRYCE.** Certainly, please.

**Dr. DYER.** The tests Dr. Anderson is referring to is one in which we used a different chamber, our all-glass chamber. We put three times as much carpet in it as during the normal test and raised the air temperature in that chamber to 70 degrees C. It is true that we saw a lot of moisture in that case. However, in no other case have we seen any precipitation. So we think it was the fact that there was a lot more carpet being tested, about 10 square feet of carpet in a little chamber, heated up to 159 degrees.

**Ms. PRYCE.** So who is to provide us with the test that will be the most scientific and the most conclusive? How do we come upon that? You are all scientists, I am not. Whose authority is going to reign here and how do we make that conclusion, all of you?

**Mr. SYNAR.** That is what this hearing is about.

**Dr. ANDERSON.** I certainly have a comment there. At this point, what we are doing is heavy duty exploratory work. It is not appropriate to try to fix a protocol early in the process and say that is the way it should be tested. It is appropriate for us to try as many different ways to test these products as is necessary to identify what is important. I think that we have found that water is important. We had not known that before.

At first we thought the heat was very important. At the moment in our laboratory we do not test heated carpets. We test room temperature carpets. So the heat factor is something that we are continuing to evaluate.

**Ms. PRYCE.** I think Dr. Dyer would like to add something to that. I appreciate the fact that we must continue on with this. As taxpayers' dollars are squeezed tighter and tighter we want to be careful that we are proceeding economically and efficiently here.

**Dr. DYER.** Just wanted to add the comment that the humidity hypothesis was one which was raised before the peer review committee. The peer reviewers did not seem to think that that was a viable hypothesis to explain the differences between laboratories.

Mr. SYNAR. The gentlelady's time has expired. I recognize myself for 5 minutes.

Dr. Alarie, when we say "replicate" you replicated the work of Dr. Anderson, did you change any of the parameters? What does that mean, "replicated?"

Dr. ALARIE. I think you are allowed to change some variables, but if you change variables and you do not get the same results you are stuck. You have to come back. That is what I did when I started. I didn't use the exact same system that she used and I did not get the same results.

I looked at my system and I looked at her system and I put two and two together and I said there is something missing in my system that she has in her system. I called her and said ship your system to Pittsburgh and that is what she did. When I tried it, obviously I got the same results that she has.

Mr. SYNAR. Isn't that what EPA should have done, too?

Dr. ALARIE. Yes. If you change something and you don't get the same result, it is your fault, it is your problem. You can't change anything.

I don't care. All of you have been insisting on peer review. That may sound very strange from a university professor who has published over, I don't know, 200 papers in peer review journals and I have been a peer reviewer; peer review means nothing in science. The only thing that counts in science is can you replicate, can somebody else replicate your finding. I don't care about peer review. If you are going to try to replicate somebody else's data you better use the exact same protocol that somebody else is using.

If you made some modification and you get the same result, that is fine. But don't come crying if you have changed anything. That is your problem.

Mr. SYNAR. Dr. Dyer, even if EPA saw very little effect on the animals in the test, Dr. Anderson routinely sees animals die as part of her test. Isn't the key question here, even to a casual observer, a nonscientist, why did her animals die? Isn't that really the question?

Dr. DYER. Clearly that is the question and that was why we wanted to replicate this finding in our own laboratory so that we would have available to us the resources to answer that question.

Mr. SYNAR. Tell us why you didn't do what Dr. Alarie just said, which was to take exactly the same test and replicate it.

Dr. DYER. We thought that we had done that. That is why we went to Anderson Laboratories in January. We brought our equipment there, as she has described. We swapped pieces of equipment. When we left her laboratory in January we were convinced that we knew everything we needed to know.

Mr. SYNAR. Has EPA ever killed a mouse using the Anderson protocol?

Dr. DYER. I am sorry. Have we ever?

Mr. SYNAR. Has EPA ever killed a mouse using the Anderson protocol?

Dr. DYER. Other than the time that we were in her laboratory, no.

Mr. SYNAR. So you did kill a mouse while you were in her laboratory replicating her protocol, did you not?

Dr. DYER. Yes, a mouse died under those circumstances.

Mr. SYNAR. Are you continuing to test carpet samples using the Anderson method or some similar methods, Dr. Dyer?

Dr. DYER. Right now we have moved into what we think is a more controlled exposure system. But, yes, we are continuing to work on this problem.

Mr. SYNAR. Are you finding any more recent tests to show the same effects on the test animals?

Dr. DYER. We have seen nothing that is close to the neurotoxic and lethal effects that Dr. Anderson has shown.

As she indicated, when we did put a lot more carpet and a lot higher temperature into our apparatus, we did see some sensory irritation but none of the other effects.

Mr. SYNAR. Dr. Alarie, is it fair to summarize your opinion as, "Anderson's effects are real; we just don't know why they are real"?

Dr. ALARIE. Yes. I have no hesitation in saying that these results are real at all. And I have no hesitation in saying that, yes, we do not know why these results have been obtained.

Mr. SYNAR. Now, are the modifications made to your protocol by Dr. Anderson legitimate?

Dr. ALARIE. You mean the exposure chamber?

Yes, there is nothing wrong in the modification that she has made to the ASTM method.

Mr. SYNAR. And when you and Dr. Anderson found the same results for the same test, you were conducting that research sponsored by the carpet manufacturers, correct?

Dr. ALARIE. Yes.

Mr. SYNAR. Dr. Alarie, the role of the moisture content has come into discussion here and could turn out to be really the key variable in whether or not the results between samples, even different samples of the same carpet, are consistent; is that correct?

Dr. ALARIE. I don't know if it is a key variable or not. Obviously, it is a—it is something which varies from one piece of carpet to the next piece of carpet.

Mr. SYNAR. Is it possible that it is?

Dr. ALARIE. It is possible, yes.

Mr. SYNAR. Now, Dr. Dyer, has EPA investigated the role of the moisture content in the samples as part of the analysis?

Dr. DYER. I would say that we have not systematically investigated that. But we have two pieces of information—

Mr. SYNAR. What does that mean? Systematic?

Dr. DYER. I am sorry. We haven't varied the moisture content in a carefully controlled way. When we did our replication study with Dr. Anderson in our laboratory, we used air that turned out to be drier than the air that she used.

So if that were the case, we would have expected to see more toxic effects than she did. And, in fact, we saw none.

Mr. SYNAR. Dr. Alarie, another point of criticism about the Anderson modification to your test is the repeated stress argument that shoving these mice into the small tubes, as we viewed in the videotape four times over 2 days, may be killing them.

Have you found that stress in these animals in that way is a common cause of death?

Dr. ALARIE. No, I haven't. And what I did is I extended this to not only 2 days, but I went 5 days, and then I went 8 days.

Mr. SYNAR. What is the maximum number of days you have used them?

Dr. ALARIE. The maximum number of days, not twice a day but once a day, we have gone up to 60 days.

Mr. SYNAR. Sixty days.

Dr. ALARIE. So—

Mr. SYNAR. Did they die?

Dr. ALARIE. No, not death or even neurotoxicity. I mean no, no. We have done this routinely. And people all over the world have been using the test routinely. And people have used it in China, Japan, and Denmark. I have a friend in Denmark who has used it repeatedly for an indoor air pollution problem of carbonless paper. And it is used in France.

Nobody has ever complained to me that mice coming out of these tubes have neurotoxic effects or die.

Mr. SYNAR. Mr. Hastert. Five minutes.

Mr. HASTERT. Mr. Chairman, I don't think I will take the entire 5 minutes.

I am sure you do an autopsy of the death of the mouse when it dies. You said you haven't had a lot of deaths. So, obviously, you haven't done many autopsies.

But what do you find in those autopsies? I mean is there bleeding in the cranium or what?

Dr. DYER. Are you addressing that to me?

Mr. HASTERT. Whoever wants to answer that. Yes.

Dr. DYER. What we have done in all of the animals that we have studied which did not die, we euthanized them at the end of the study, and we did a study of all of the major organ systems in those animals, a microscopic study; plus we did a complete workup on their blood chemistries.

We saw nothing under those circumstances.

In the animals that died at Anderson Laboratories, one of those animals—I think maybe both, but I am only certain about one—we were able to do an autopsy on the spot right there. It was very crude. What we saw was a hemorrhage, which, to our eye, could be interpreted as a result of trauma. It was hemorrhage in the skull region.

Mr. HASTERT. Trauma? You mean trying to get its head out of the noose?

Dr. DYER. I couldn't speculate why, but that would be one way that that could happen.

Mr. HASTERT. Dr. Anderson, would you care to comment on that?

Dr. ANDERSON. Hemorrhage is pretty difficult to comment on with regard to cause.

If the problem of being in restraint in this kind of a holder is going to kill mice, we would expect to see mice dying from the same kind of hemorrhage repeatedly in our controls, and we don't.

Mr. HASTERT. Well, it kind of depends on what you are sniffing, too, doesn't it? If the stuff is coming out of a carpet at a 170, 195 degrees and going by your nose, you might want to get your nose out of there, and you said that there was some evidence the mice

didn't like to be in there when that stuff was passing by their noses.

Dr. ANDERSON. There are occasionally times when the mice are very active, and they truly wished to go someplace else.

More frequently, they appeared to have gone to sleep on us so that we don't ordinarily expect to see them struggling vigorously. They wiggle.

Mr. HASTERT. Fine. Obviously, I am not a mouse expert. It just seems that the evidence would show some things.

Thank you, Mr. Chairman.

Mr. SYNAR. I recognize Mr. Sanders for 5 minutes.

Mr. SANDERS. I am also not a mouse expert. But I would like to ask perhaps, Dr. Dyer, who we presume is a mouse expert of sorts, in your judgment, is it possible that one of the reasons that your results came out differently than Dr. Anderson's is that some of the neurotoxins in the carpet are perhaps water soluble?

Might that, in fact, in your judgment, explain the difference in results?

Dr. DYER. In my judgment, no, that would not explain the differences in results.

Mr. SANDERS. OK.

Dr. Anderson, would you like to comment on that briefly?

Dr. ANDERSON. We certainly are able to collect something when air that has been in contact with carpet passes through a water or a saline trap.

We know there is something there because when we expose animals to that water or saline, whichever we use, the animals are very quickly damaged. And, in each case, we have seen one die immediately.

Mr. SANDERS. Let me—

Dr. ANDERSON. I think that says water soluble.

Mr. SANDERS. Dr. Dyer, did you expose mice to that water?

Dr. DYER. Have we exposed mice to the water?

Mr. SANDERS. To the water.

Dr. ANDERSON. No.

Dr. DYER. No, we have not.

Mr. SANDERS. As I understand it—not being an expert here—Dr. Anderson, in an answer, replicated what you had done and then found that the water itself, in a mist form, had a negative impact on the mice. Is that something you can—

Dr. DYER. No. I don't think she replicated what we had done. The water hypothesis as I understand it is one in which Dr. Anderson has now interposed water between the aquarium and the animals and bubbled the air through that water before it goes to the animals.

That is not something that we have done. We have not done that.

Mr. SANDERS. Dr. Anderson, did you want to comment on that?

Dr. ANDERSON. Perhaps we are getting into confusion because there are too many experiments on the table.

We have also put humidified air into a previously very potent carpet system and found that the animals were protected.

We have also put carpet that was slightly damp into the system, and we found the animals were protected.

So we have done it a number of ways. And we think the evidence is growing in interest.

The fact that the peer reviewers didn't like the idea is unfortunate. However, I think data takes precedence over opinion in this case.

Mr. SANDERS. Let me mention something, Mr. Chairman, which I find interesting. In a little while, we will be hearing from the people from the carpet institute. But one of the interesting observations that I made in reading the statements given to us for the record is, in fact, based on my judgment, that the carpet institute representing the industry is, in fact, moving quicker and more vigorously in responding to consumer concerns than is the EPA.

Reading your document that you presented to us, Mr. Kimm, you want to continue to study to see the impact of the "green tag" program. In other words, you want to do a focus group to see, in fact, what people understand from the "green tag" program. And if the evidence suggests that people think something, you want to continue the discussion to see where they go.

Are you aware that in the paper given to us by the institute, they say that the CRI, the voice by which the carpet industry communicates with the public, that they are prepared to develop an additional consumer information label focused on those who may consider themselves unusually sensitive individuals. This label will be attached to every roll of carpet manufactured by our industry and will also be prominently displayed in retail outlets as well as on each carpet sample.

We will be able to talk to the carpet institute to find out exactly what that means. But I think that is a step forward.

I read your document. You are not even prepared to demand that the industry do that. They have voluntarily come forward, which suggests to me that they are moving in a more responsive way than is our taxpayer-supported institution.

Mr. KIMM. Well, we are pleased that they are moving in that direction. We were concerned about the issue, which is how we got into this focus group with CPSC, and an FTC component in this.

But on that one, that is, to the degree to which the advertising is misleading or whatever, that is an FTC enforcement problem. We don't enforce that. And that is what you are looking at.

Mr. SANDERS. No. What I am looking at is the statement you made in the paper. As I understand it, they see a problem; we will talk to them later about it. They are prepared to go forward and change their labeling, have signs up in stores. They are prepared, voluntarily, to do that.

Your statement is, you are still studying that problem.

Mr. KIMM. We are required by you and the legislation to have a specific cause of action for the things that we do. Simply stated, the heart of the matter is that we often get voluntary compliance. We have already, in this area, gotten some reduction in the total VOC's out of some indoor products. We view that as a constructive thing, and we call it pollution prevention. We have a fancy name for it.

But in terms of the regulatory functions that we have, you have given us a fairly significant burden of cause and effect relationship before we can act.

Mr. SANDERS. Thank you, Mr. Chairman. I yield back the balance of my time. Thank you.

Mr. SYNAR. Mr. Hayes.

Mr. HAYES. Yes.

Dr. Anderson, I was asking Bernie, he didn't know, is it really true that 43 of your mice wrote me a letter asking to be reassigned to a different project?

Dr. ANDERSON. Probably all of them would have signed up had they been given the opportunity.

Mr. HAYES. The one thing that I want to ask—and I won't dwell on it because I want to make sure that I am understanding this correctly—your goal, Dr. Alarie, was to replicate not to pass judgment on.

In other words, your goal was to take the first step of scientific inquiry, reproduce what happened, and then when it did not reproduce, that gave you some additional concerns. But the goal was to match the process.

Dr. ALARIE. That is correct. In science, something is true not because peers are saying it is true. Something is true only if somebody else can replicate your findings.

Mr. HAYES. Right. But what I am saying is, it is not judgmental. In other words, if you pull all four legs off a flea and tell it to jump, it doesn't mean it is deaf. You may be able to replicate it, but it doesn't mean it, therefore, has the significance until you then analyze the process.

In other words, I can match it, but that doesn't mean that it means anything.

Dr. ALARIE. But you have to match it first.

Mr. HAYES. What I am asking is: Have you done the first level analysis? Or are you here today telling us that you have done a second level of analysis in addition to replication?

Dr. ALARIE. No. We have done a lot more since then that I did not bring with me. And I don't think I want to bring this thing here today.

Mr. HAYES. Well, what I'll probably do is I will probably ask you for it for my committee then, because I do—

Dr. ALARIE. That would be fine. I would have no—

Mr. HAYES. The point is, in trying to make public policy, I have no carpet industry in my State; I have got a great many people concerned about health concerns; I have a world of EPA people because of contaminants of other kinds; and all I want is the public policy to reflect human risk assessment.

But I don't think replication is the last step. Clearly it is the first, and I am not arguing with that. I am not here to argue with anybody. I am glad, Dr. Anderson that you replicated it. But it doesn't mean anything regarding public policy. And I am glad Mike's having this hearing because, obviously, we have an obligation not to just match it but to then, through government charge or in some manner, go forward from that to see what it means.

And that is really the only observation I wanted to make, Mr. Chairman.

Mr. SYNAR. Mrs. Thurman.

Mrs. THURMAN. I pass.

Mr. SYNAR. Mr. Mica.

Mr. MICA. Thank you, Mr. Chairman. Again, I am concerned about the impact of a hearing of this nature and also the element of common sense that doesn't seem to be apparent in some of this.

I think we can test all the mice and rats that we want to, and EPA has already done some testing. I noticed that you already put out a brochure that tells people that they may have a reaction, that there may be some emissions. This is currently published; is that correct, sir?

Mr. KIMM. That is a consensus. That was put out by a group of people. Yes.

Mr. MICA. Yes. And then the carpeting people say that they should use common sense, ventilation, things of that sort.

I have a terrible time sleeping in a room after it has just been painted. In fact, for several days it causes me problems. And here is another guide to indoor carpeting installation and problems.

Don't you feel that some of this could be resolved by common sense rather than spending millions and millions of taxpayer dollars testing rats and coming up with information that may not be anything more than, say, a common sense warning to the public?

Mr. KIMM. In my judgment, we ought to both have the common sense warnings for the public saying there may be a problem and if you can do reasonable things to avoid the problem.

I also think we bear a responsibility to try to sort out what is really going on and to regulate where that is the appropriate measure, if we can make this cause and effect relationship stick.

Mr. MICA. Another thing, Dr. Anderson. You said that carpeting is the only type of flooring that you have done. You have not done any vinyl?

Dr. ANDERSON. We have, indeed, done some vinyl flooring.

Mr. MICA. Oh, you have?

Dr. ANDERSON. Yes.

Mr. MICA. Tell me about vinyl. Do the rats die on vinyl, too?

Dr. ANDERSON. It was remarkably uninteresting from the respect of sensory irritation, pulmonary irritation, and neurotoxic. We didn't find anything of note.

Mr. MICA. Nothing? And was it one or two types of vinyl or many?

Because I get a terrible reaction from installing vinyl. I was in the development business, too. And we would install vinyl, and the fumes from the vinyl would be in those kitchens for weeks.

Dr. ANDERSON. We certainly have not done any kind of a comprehensive study of all the attributes of vinyls. The one that we happen to have studied was not one that you would have needed to avoid.

Mr. MICA. Mr. Kimm, it is my understanding, too, that there are millions—is it 80 million households and businesses that have carpeting installed. I don't know the exact figure.

But is your complaint ratio one to—is it 8,000?

Did someone tell me 8,000, staff?

One to eight million?

Mr. KIMM. I have no idea what the ratio would be.

Mr. MICA. So now we are getting one complaint per 8 million installations?

Mr. KIMM. I think it is not so much the number of complaints; it is the clear pattern and that if a fair number of people in our society are concerned that there may be a link, we think we have a responsibility to try to sort that out.

Mr. MICA. But again, does anyone know, can anyone give me at EPA, how many complaints you have had per carpet installation?

Mr. KIMM. No. I think there is a number, again, in my briefing book.

Mr. MICA. The staff had indicated it was 1 per 8 million.

Mr. KIMM. Well, we had 150-some-odd calls in the last 3 months, is it? And if you divide that by half the population of the United States, who I assume have carpets, it would be a very small number.

Mr. MICA. Very small number. So, again, there are some, I don't want to deny that there aren't some reactions. There are reactions even to children drinking milk.

I told you the problem I had with some kind of cheeses. But, again, it seems like a very small incidence, does it not, sir, that you are having complaints on?

Mr. KIMM. Sure. The numbers work out that way. But I think that, I guess what I am trying to suggest is that we at the agency think it is a serious concern and worthy of investigation.

Mr. MICA. Is the agency involved at all?

You know, I noticed out in the Indian tribes they are having problems with rat feces. And I have been trying to cut down on the amount of rat feces that I consume because it is directly linked to some deaths that have been reported.

Are you all doing anything in that area?

Mr. KIMM. I am not—I think you are—

Mr. MICA. You don't have to answer. I am just begging the question. Thank you, sir.

Mr. SYNAR. Let me see if I've got this right. We need to look into cheese, vinyl, Ms. Hastert's curtains, paint, and rat feces. We are going to be here a long time with all these.

I will recognize myself for 10 minutes this time. Mr. Hastert's been kind enough to give me his 5, too.

Mr. Kimm, in a March 1993 publication, just 3 months ago, an analysis by Lawrence Berkeley lab for the Consumer Product Safety Commission on what is in carpet states in its executive summary, "carpets emitted a VOC rate of VOC's over 40. With the exception of formaldehyde, little is known about the health effects of these VOCs at low concentrations."

Why don't we know more about these chemicals, Mr. Kimm?

Mr. KIMM. Well, we do about them at higher concentrations, at least the ones that are fairly ubiquitous in the society. But the way they get tested, they are looked for in terms of end points like cancer and birth defects. They are not looked for in terms of things that cause problems like headaches and nausea and some of the other symptoms.

Mr. SYNAR. Why not? Why aren't we looking into them? That is the question.

Mr. KIMM. Well, we do presently have tests that are refereed and agreed upon test protocols for many of them. And we do not have

general authority to require testing of chemicals in the United States.

Mr. SYNAR. But there is no question, people are getting sick. How can we be assured that there is not a problem if we don't look?

Mr. KIMM. Well, we are trying to look. We don't have the resources to look everywhere. And we are trying to very selectively examine promising questions and see if we can answer them.

Mr. SYNAR. Mr. Kimm, there are chemicals that make up carpets. You have heard about them today: Fibers, latex, soil repellents, flame retardants.

Have you ever asked the carpet industry for a list of everything they put in the making of a carpet?

Mr. KIMM. I don't think we have asked for everything that they make in a carpet.

Mr. SYNAR. Why not?

Mr. KIMM. I think we have done some compliance with them for the volatile stuff, because that was a prime concern a year or two ago.

Mr. SYNAR. Doesn't it make sense, given the number of complaints we have had over the years, to ask the industry what they put in the carpets in the first place to see if that can explain some of the problems?

Mr. KIMM. That is a piece of the information that you would need for this, that I—

Mr. SYNAR. Isn't that a basic first step, common sense?

Mr. KIMM. It is a first step, if you have the resources, to keep up with it. The second step is to stay current.

Mr. SYNAR. How many resources does it take to ask?

Mr. KIMM. It doesn't take very much in resources to ask. It does take a fair number of resources to deal with the information that you collect.

Mr. SYNAR. You can't even put a budget to that until you ask.

Mr. KIMM. Well, getting lists of hundreds of chemicals is the first step. Then taking a look at what we know about the toxicology, which still doesn't tell you very much until you have some notion of what levels these chemicals actually exist at.

Mr. SYNAR. Are you telling me you now expect hundreds of chemicals to be reported by the industry?

Mr. KIMM. Surely.

Mr. SYNAR. Surely? Let me see, what does EPA stand for, Mr. Kimm?

We understand that over time, the toxic program, Mr. Kimm, has flagged some carpet chemicals such as soil repellent and flame retardants as worthy of further scrutiny in part of the new chemical review program. Is that true?

Mr. KIMM. Yes.

Mr. SYNAR. If a manufacturer started to add a new soil repellent chemical to its carpet or add it in a different way, would EPA be aware of it?

Mr. KIMM. If it were a new chemical, he would be required to come through our new PMM process, which I think you are familiar with.

Mr. SYNAR. But it would not necessarily—unless it was significantly new, correct?

Mr. KIMM. Right.

Mr. SYNAR. Brand new? It would have to be brand new, right?

Mr. KIMM. Yes. If the chemical had not previously existed in the society and was on the inventory.

Mr. SYNAR. But most of them were old. You wouldn't know about them, if he added them, right?

Mr. KIMM. If he had shifted the product composition, we would not know.

Mr. SYNAR. The first step EPA could do is request the industry give notification when changes are made in the basic ingredients in carpets and then see if the complaints correlate with that.

Wouldn't you think that is common sense?

Mr. KIMM. That would be one way of beginning, yes, to deal with the problem or to deal with the problem of collecting more information.

Mr. SYNAR. Are you going to look at that option, now that I have brought it to your attention?

Mr. KIMM. If we weren't, we probably will.

Mr. SYNAR. Thank you.

Dr. Dyer, in EPA's analysis of the replication carpet samples, it found that a level of formaldehyde in the sample exceeded the suggested threshold limit value, the TLV, by almost 50 percent.

Was this surprising? Or could you explain why this was just a problem carpet?

Dr. DYER. I can't explain why it was a problem carpet, except to say that the carpets that were tested had attached to them both the glue and backing and also pieces of wood from the floor that they were pulled up from.

And it is not—we can't say for certain that the formaldehyde that we measured actually originated in the carpet.

Mr. SYNAR. But formaldehyde is one of the better characterized chemicals, is it not?

Dr. DYER. That is certainly true.

Mr. SYNAR. And it is a bad chemical, isn't it?

Dr. DYER. In high concentrations, it certainly is.

Mr. SYNAR. Well, that could explain some of the complaints from consumers, at least about carpets, couldn't it?

Dr. DYER. I am sure it could. But one of the problems is carpets also act as a sink, a sponge. They pick up things that otherwise are in the environment, which is another part of the complexity of the problem we are dealing with.

Mr. SYNAR. Now, Dr. Dyer, you read Dr. Alarie's testimony; you heard his testimony. And I think you would agree that you get a kind of a different tone to the observations of the Anderson method.

Now, obviously, since he has replicated her results in four of his five samples, he is less skeptical of the method. Now, as you continue work on the Anderson method, setting it up in the past, have you been in contact with him at any time to see how he set up his experiments and replicated them?

Dr. DYER. Members of the EPA study team have talked to Dr. Alarie at least on a couple of occasions about this.

Mr. SYNAR. What did they do based upon those contacts with him?

Dr. DYER. I can't recall for certain exactly what modifications we might have made based on those conversations.

Mr. SYNAR. Well, you know, he is the inventor of the method, is he not?

Dr. DYER. Yes.

Mr. SYNAR. And he kept tinkering with it until he got replication, did he not?

Dr. DYER. Yes.

Mr. SYNAR. Isn't that a more objective science than what you all did?

Dr. DYER. I wouldn't say that there is a more objective science than what we did.

Mr. SYNAR. Mr. Kimm, very frankly, whether through complacency or incompetence or conspiracy, 8 months after the last carpet hearing and 5 years after EPA had massive problems in its own building, we don't seem to be much closer to clear answers to questions about the possible affects from carpets and carpeting materials.

Can you give us, for the record and under oath, when you expect to get a clear explanation on why Dr. Anderson's mice died or an alternative test to test this?

Mr. KIMM. Well, I can answer you now because I don't think that it is humanly possible to give you a date certain when we will have it. It is over the last 8 months we have—It may not seem that way to at least Congressman Sanders—but we have undergone a significant reallocation of agency resources. We have pursued this new opportunity for getting smarter aggressively, and we will continue to follow through that.

Mr. SYNAR. How much have you spent, Mr. Kimm?

Mr. KIMM. That was the number I cited earlier. Somewhere between half a million and a million dollars.

Mr. SYNAR. Dr. Anderson, he said it cost him a half million dollars. How much did it cost you to do that test?

Dr. ANDERSON. We would charge for a series of six tests of that sort, about \$24,000.

Mr. SYNAR. About \$24,000, for six tests. So that is about \$4,000 a test?

Dr. ANDERSON. Right.

Mr. SYNAR. You want to explain that, Mr. Kimm?

Mr. KIMM. The types of activities that we undertook, which took senior people and redoing a lab and a variety of other sets of circumstances, aren't the same kinds of things.

Mr. SYNAR. Could the magic word be your contractors?

Mr. KIMM. Excuse me?

Mr. SYNAR. Could the magic word be cost of contractors?

Mr. KIMM. There were some contractors involved in this process, sure.

Mr. SYNAR. Now, the peer review problem suggests, among other things, that the EPA send some of the staff to Dr. Anderson's staff to observe or run the tests, to check on the pretest condition of the animals, to analyze some of the mice that died in her studies, and so on.

Do you all intend to follow some of the sessions in the next 2 weeks, Mr. Kimm?

Mr. KIMM. What we want to do and what we are proposing to do is this workshop is to bring together both the data that we had and, with the collaboration of Dr. Anderson, to follow up on these suggestions.

What we need to do is to have a clear understanding of her protocol of what things we will do in her lab. And she needs to be part of that process.

The timing of that is not a matter of a couple of weeks. It is a more complicated process.

Mr. SYNAR. Well, give us a timeframe. I don't have to bring you in here every month to get an update, do I?

Mr. KIMM. Let us both hope not. As a practical—

Mr. SYNAR. Let me ask you this: How can we be sure that the latest and best information is actually getting to the hands of consumers, Mr. Kimm?

Mr. KIMM. We are held accountable not only by this committee but by a lot of other people for sharing information as it becomes available to us.

I wish that we could move a lot more quickly, but there are an awful lot of constraints that we have to work through that make that very difficult for us to do.

For example, to run the next peer review, we need to use a contract and organize that. To write a work order under an existing contract, it will take a minimum of 6 to 8 weeks to exercise that.

Mr. SYNAR. Let me pin you down. Later this morning we are going to hear from the carpet industry, and they are going to propose the development of a research strategy designed to get to the bottom of all these questions. And I would assume you are going to play a major role in that.

Mr. KIMM. We would certainly like to.

Mr. SYNAR. Can I ask you and your staff to develop such a strategy with the manufacturers and the relevant parties, such as Dr. Anderson and Dr. Alarie, within the next 60 to 90 days?

Mr. KIMM. We would certainly like to try to participate in that process, surely.

Mr. SYNAR. No. No. I want a commitment that you will do it. I don't want you to say you will do the best you can.

Mr. KIMM. I am perfectly willing to say the agency will do the best it can. But to pull one of those together, we have been down that road a few times, everybody else has to fully cooperate. We will certainly support that effort.

Mr. SYNAR. I need a definitive answer. Can you tell me today you will try to do this. We have waited months and years.

Mr. KIMM. I will tell you today that we will try to do that, and we will support our end of the process.

Mr. SYNAR. How much will it cost?

Mr. KIMM. I haven't a clue.

Mr. SYNAR. Who is going to pay?

Mr. KIMM. I assume that this would be as it was in the past. It will be an essentially senior staff from a variety of program offices, and we will take them from their other duties.

Mr. SYNAR. If you recommend further tests, who is going to pay for those, Mr. Kimm?

Mr. KIMM. If we were able to specify the specific testing, we have authorities in which we could probably impose those costs on industry.

Although, in the current climate, if the industry is supportive of the evidence, we may not have to do that; and they can move much, much more quickly than we can anyway.

So I would hope if we can agree on a protocol and a series of tests that need to be conducted, the industry would conduct them. And we have had cooperation like that in the past.

Mr. SYNAR. Mr. Sanders.

Mr. SANDERS. I appreciate your line of questioning, Mr. Chairman, because I think one of the frustrations that I have had is that these things drag on and on and on. Let me give you an example, if I might. Maybe Mr. Kimm might comment on this in terms of how things drag on with the EPA.

On page 16 of your statement, you write, in terms of the "green tag" program: "Accordingly, EPA, in cooperation with the Consumer Product Safety Commission, will undertake an effort over the next several months—several months—to evaluate using consumer focus groups, getting a handful of people together to determine how consumers react to and interpret the information provided them under the 'green tag' program."

So now we have several months to get a half a dozen people together to ask how they respond to the program. If we determine they are really moving along very, very vigorously here, if we determine that consumers are misinterpreting the message, "we hope to gain insight as to how the message or approach of this voluntary consumer information effort could be improved." I don't know how many more months we need do that. "And then to share and discuss our findings with the carpet industry."

Fortunately, the carpet industry is far ahead of you on this laborious, tortuous process. They are, apparently, moving forward a little bit quicker. That is in terms of movement here.

I wanted to ask Mr. Kimm: Mr. Kimm, do you believe what Dr. Dyer believes about multiple chemical sensitivity?

Mr. KIMM. I think we both are aware of the phenomena and are concerned about it.

Mr. SANDERS. I mean, as you know there is—

Mr. KIMM. Do you believe, that is kind of a—

Mr. SANDERS. Well, there is controversy over it. Some people say it is a mental problem; some people say it is a real problem.

Mr. KIMM. I personally believe it is a real problem.

Mr. SANDERS. OK. We have heard earlier in Mr. Synar's questioning that there are many dozens and dozens of chemicals involved in the production of carpet. And what I understand you have told us is, we really don't even know all the chemicals involved.

Isn't that correct?

Mr. KIMM. Essentially, yes.

Mr. SANDERS. Yes. OK. Now, given that reality, that there may be—and I think the carpet institute will tell us that they believe that multiple chemical sensitivity may exist—that means there may be one individual who is very, very sensitive to certain chemicals and another person who is not.

Is it possible--and Dr. Alarie has told us earlier--that the production of carpet is not necessarily a straight, a consistent process.

Is it possible that you may have an individual who is particularly sensitive to low levels of a chemical who might be affected, maybe 1 in 100; is that a possibility?

Mr. KIMM. Absolutely.

Mr. SANDERS. In terms of it might, it might not give us some clues or information. The gentleman over there, my colleague, mentioned that only a small percentage of people have responded.

I would add to that line of questioning, that not everybody knows. If somebody had a problem with a carpet, I don't know who they would call. Very few people know who the Consumer Product Safety Commission is.

And might it not be possible that you have some people who, for whatever reason, are more sensitive to certain chemicals in a carpet and, in fact, are responding very seriously?

Mr. KIMM. Yes.

Mr. SANDERS. OK. You mentioned before about the establishment of a workshop. In that workshop, will you be inviting physicians and other people to the workshop who, in fact, believe, based on their experience and observations, that carpets are causing human health problems?

Will those people be invited? Will some of the physicians that we have been in communication with my office be invited?

Mr. KIMM. The workshop would be, as it normally would be, open to the public. If there are particular people we can contact who have expertise, linkage expertise, that they could bring to the process, I would assume that we would pick them up.

Mr. SANDERS. Being open to the public doesn't mean anything. This hearing is open to the public. I—anybody—can come in, and we welcome that; but not everybody is testifying; not everybody is part of the process.

I am asking you—my concern is you don't seem to go out of your way to bring in people who are saying we believe there is a link between toxic carpets and human health.

So what I am asking you is, will those people who do believe that be invited to participate in the workshop?

Mr. KIMM. We will endeavor to bring some of the folks that share that view to the process.

Dr. SANDERS. If we give you a list of physicians whom we have been in contact with, will you invite them to participate in that workshop?

Mr. KIMM. We will invite some of them. I don't know how many we can accommodate.

But let me—you are on to this, and this is a very sore point with me. On this burden of proof and the regulatory process, I personally led the charge to promulgate a rule from EPA to basically ban asbestos products in the United States.

We were 10 years in putting together the case behind that. And I think on the health basis, the case for adverse effects of asbestos is probably stronger than anything, almost anything else we know anything about.

And a few months later a court threw that rule out because they felt that we had not met all of the procedural requirements for

demonstrating the link and demonstrating that this was at least a protective regulatory program that might afford some public health protection.

We could not have a simple burden to move, and no one is more frustrated with how long it takes the government to move. You talked about a joint focus group with CPSC. What can it cost to get a few people in a room? I invite you to join me in trying to make that happen, across agencies, through these various contract vehicles that we have to work with.

Mr. SANDERS. In all respect, Mr. Kimm, OK, I heard your description of establishing a focus group. One or two of us have run for office and one or two of us have used focus groups. It does not take months to put them together and months more to evaluate the results.

Mr. KIMM. It doesn't take months to put them together. But we can't get to them as simply as you can. Just as we can't move into testing activities as quickly as the private sector can.

And in part that is because we are tied up in contract agreements and interagency forums and all the things that go with that kind of thing.

Mr. SYNAR. Maybe we will solve some of that as we look in the committee.

Mr. KIMM. I was afraid of that.

Mr. SANDERS. Thank you, Mr. Chairman.

Mr. SYNAR. First of all, let me thank this panel. We have been here a good 3 hours; and, Dr. Alarie, I think it is important to note, you don't have a dog in this fight, you paid your own way down here. And I do appreciate that. That is very good.

And, Mr. Kimm, believe it or not, since you are just Acting Assistant Administrator, I think you have taken this on well. I am sure you wish Linda Fisher was still around on something like this. But let me just say this to you as sincerely as I can: We have got to get to the bottom of this. I don't care what it takes for EPA to repeat these studies. I don't care what modifications, what staff has to be exchanged. If you have to exchange mice, research, whatever it takes, we have got to do this. And we have waited 8 months since the last hearing, and we don't seem to be getting any closer to a clearer decision for everyone. And this problem has been around for years.

I am directing you to get on with it. Whatever obstacles are out there, crawl over them and get this job done.

Mr. KIMM. I agree with you on the desirability. We are not any smarter 8 months later, but we sure have tried a bunch of things. And we will continue to pursue this.

Mr. SYNAR. Thank you.

And thank all of you for being with us today.

Our next panel is Eric Peterson, Executive Director, U.S. Consumer Product Safety Commission; E. Gail Suchman, assistant attorney general for the environmental protection bureau, State of New York; and Linda Sands, a homeowner from Montpelier, VT.

As you panelists saw from the previous panel, it is the policy of the subcommittee to swear in all witnesses. Do any of have you any objections to being sworn?

If not, stand and raise your right hand.

[Witnesses sworn.]

Mr. SYNAR. Let me apologize for the lengthy previous panel, but obviously it was a very important panel. We will include your entire testimony as part of the record. At the same time, we ask you to summarize within about 5 minutes.

We will begin with you, Ms. Sands.

#### **STATEMENT OF LINDA SANDS, HOMEOWNER, MONTPELIER, VT**

Ms. SANDS. In March 1985, my family began to feel the ill effects of 130 yards of toxic carpet installed in our home.

At that time, my husband, a lieutenant colonel in the U.S. Army, and myself, had four children. We are a very close family. We enjoy holidays and birthdays and looked forward to them. Little did I know that after the installation of the carpet in my home, all of that would soon change.

I can remember asking the carpet dealer for a plain, off-white-gray carpet that could be put throughout our home that would be tolerated by children. Little did I know that this carpet would emit toxic gas that would make them sick and that we would suffer the consequences 8 years later.

Our carpet had a very strong chemical odor. Within a day of installation, my family experienced severe headaches. I told the installer of my family's problems, and he just looked at his men and laughed at me and said they had a lot of days that they felt like that.

If there had been regulation on these chemicals or at best a warning label, I could have prevented my family from going through this. We could have saved a lot of misery and heart ache.

In the weeks that followed, our symptoms worsened. We experienced dizziness, burning noses and throats, double vision, nausea, diarrhea, and shortness of breath. I spoke with our physician. He recommended that we air out our home for a week. We did the best that we could, but being March in Vermont, it did not alleviate the problem. I contacted the State health department. They could not come soon enough, and my family was very ill at that point. They gave me the name of an environmental lab in our area.

The lab, along with our doctor, suspected formaldehyde; but they did not find any. We called in a chemist, and he advised us to pull out the carpet immediately. I learned at this time that I was pregnant. My doctor told us to leave our home. But even after we left, my body hurt all over just to touch me, and my lungs were on fire.

And now I discover that I am pregnant. I became preoccupied with fears about what my unborn child had been exposed to. I wondered if that baby would be all right. We returned to our home after having our carpet removed, thinking everything would be OK. It wasn't. Our daughter Kalika, age 3½ at the time, lost the ability to control her bladder. She was a child that at 18 months old decided diapers were not necessary and had potty trained herself. She was now wetting at night. I could not go on an hour's drive with her that she was soaking wet. That had become a chronic problem.

My sons, Stephen and Kyle, were having respiratory problems. My daughter, Erika, began having chronic headaches, sore throats, sores in her mouth, and chapped lips.

Through all of this, I experienced a wrenching pregnancy. Our youngest daughter, due on Christmas Day, was born prematurely, December 2. I remember praying that she be spared the effects of these chemicals.

In the days and months and years that followed, we slowly became sicker and sicker. My two youngest daughters were now chronically ill with ear, sinus, and respiratory infections. My youngest son was so affected by the chemicals in our home that he was sleeping all the time, unable to do his school work. When he returned home after school, within 15 or 20 minutes in the home, he would fall asleep on the sofa. He was unable to do school work. He did not eat dinner. This was a former, very active child and honor student. His temperament changed drastically. His father would have to carry him up to bed every night, without dinner, without doing homework. This went on for 18 months that we were in that home. He almost seemed to be in a trance. He quit the school soccer team.

My oldest son, Stephen, quit the track team because he physically couldn't keep up with it.

My daughter Erika suffered from chronic headaches and coughing. An occupational health specialist in Massachusetts advised us to leave our home permanently. We had built the house; it had been our home for 12 years; and we loved it; and we were very upset to have to move.

Our youngest daughter was so ill and so environmentally sensitive that she had to be removed from kindergarten. She spent her days sleeping.

Kalika had gotten so bad that she couldn't even walk upstairs. She could not dress herself. And on the days that I tried to take her for a walk, I can remember one instance that we were with a neighbor, Kalika couldn't make it. We had to take the child's baby out of the stroller and put her in it. And it got to the point she would only try to go for walks at night so no one would see her.

I felt as if my children were being taken from me one by one. I never dreamed 130 yards of carpet could cause such damage. As a parent, you worry about such things as, you know, car accidents or getting hit on a bicycle or whatever. I never thought I would have to worry about carpet hurting them in this way.

We decided to seek detoxification treatment. It was not a cure, but it is the only thing available to victims of chemical exposures at this point.

I returned home after 9 weeks of treatment, hoping to enjoy life with my husband and children. Instead, my son Kyle was poisoned a second time at our local high school. His was not the only complaint. Many children had headaches and nausea. Kyle and another student had to be transferred to another school.

I have had to endure suggestions that I am crazy, that the problem is psychosomatic. I know there was something wrong with my carpet. My carpet was tested by Dr. Rosalind Anderson, and she confirms it was toxic.

We live in a town of 6,000, and I continue to receive calls in the area from other victims of carpet exposure, a few to include physicians, employees of the State motor vehicle department in our town, State agriculture department, students at the high school, and others that have been made sick by toxic carpet.

Since testifying before the Senate subcommittee on October 1 of last year, I have received calls from Indiana, Wyoming, Massachusetts, North Dakota, Connecticut, California, Ohio, Colorado, from one end of this country to the other.

I really want to know what you plan on doing. I come here 8 months later after testifying in October, and I continue to hear about mice. I am getting calls from sick parents with sick children, from elderly, from men in offices, from women in homes. I am just very saddened to come here and see that it doesn't seem like you are moving very fast. My heart aches to hear of other toxic exposures, especially in children. These children should be in the best years of their lives. They are being robbed of their homes, their childhood, their health, and most of all their spirits.

And I beg of you to please take care of this problem. And may my voice ring not only for the Sands family but for all the other victims of toxic carpet exposure.

Mr. SYNAR. Thank you very much, Ms. Sands. Thank you very much for that very moving testimony.

Ms. Suchman.

**STATEMENT OF E. GAIL SUCHMAN, ASSISTANT ATTORNEY GENERAL, ENVIRONMENTAL PROTECTION BUREAU, STATE OF NEW YORK**

Ms. SUCHMAN. Thank you. My name is Gail Suchman. I am an assistant attorney general in the environmental protection bureau of the New York State attorney general's office. I am here today on behalf of Attorney General Robert Abrams, who, regrettably, was not able to attend this hearing.

I want to thank Congressman Synar and the other members of the subcommittee for inviting our office to testify about the need to inform the public of potential health risks associated with indoor air emissions from carpets.

In 1989, a consumer from Kingston, NY, complained to our office that she and her husband had suffered respiratory illness as a result of new carpet installed in their home. Upon further investigation, we learned that from 1988 to 1990, the U.S. Consumer Product Safety Commission had received over 500 similar complaints. The complaints described a variety of symptoms, for example respiratory difficulties, headaches, nose and throat irritation, and the development of immune system disorders. The complaints continue. And since 1990, CPSC has received several hundred more complaints.

There are dozens of potentially toxic chemicals used in the manufacture and installation of carpets which may be emitted from those carpets. If emitted into our indoor environment, these chemicals contribute to the degradation of the air we breathe in our homes and offices.

While there are no definitive scientific studies linking specific air emissions from carpets with the reported symptoms, the symptoms

are consistent with known effects of the various chemicals emitted from carpets. We have all come to understand the folly in waiting too long to react to health complaints associated with such potentially toxic substances. Therefore, in 1991, together with 26 other States attorneys general, Attorney General Abrams petitioned the CPSC asking it to require that warnings and informational brochures be given to consumers at the point of sale. Warnings would alert the public that some people may be sensitive to the chemicals in new carpets and that, while not proven effective as an universal remedy, good ventilation during installation may be useful in dissipating at least some of the chemicals emitted. By widely distributing educational materials, susceptible individuals might be able to avoid some potential problems.

Twice we were rebuffed by CPSC.

Since 1991, the scientific debate over the potential health effects associated with air emissions from carpets has continued to rage. You just heard from Dr. Anderson and Dr. Alarie. EPA continues to conduct studies. It is our hope that these studies will lead to the establishment of federally mandated emission limits or other appropriate regulation to develop less toxic carpets for pollution prevention and to protect public health.

While all this scientific investigation is ongoing, though, CRI, the Carpet and Rug Institute, which is a trade association for the carpet industry, has recently instituted a so-called "green tag" program. While I have just heard today that CRI may be making changes to this program, the program which I am about to discuss is well under way.

This program purports to certify that carpets meet certain indoor air quality standards. While there are no government approved air emission standards for carpets, CRI has, in fact, set its own standards. A carpet manufacturer may obtain a "green tag" for an entire product line simply by having one small piece of carpet tested once a year for emissions of only four components.

CRI's own data indicates that at least 86 percent of all carpets tested will meet its standards without any alteration or reduction in the use of chemicals in the manufacture of those carpets. This means that people are being exposed to the exact same carpets today with the "green tag" that they were exposed to before the "green tag" program was instituted.

And what does the "green tag" program tell us? It says that carpets we are buying are safe. You need only look at the green tag, a copy of which is included in our testimony. The green color and the wording on this tag reinforces the safety message. While the back of the tag recommends ventilation of newly installed carpet, an important step in minimizing exposure, the tag is typically glued on to the carpet sample, preventing consumers from even reading the ventilation guidelines. A brochure that accompanies the green tag explains that the program is to ensure that, "the carpet you buy is environmentally responsible," and implies that people should feel confident about carpet safety.

The use of the term "environmentally responsible" conjures up a vision of a carpet manufactured, distributed, installed, used, and disposed of without any adverse environmental effects. This goes

well beyond any air quality claims made through the "green tag" program.

In addition, CRI's brochure includes a statement that several governmental agencies, including EPA and CPSC, and well-known citizen groups, are represented on its indoor air quality panel. Despite a meager attempt to clarify the involvement of these organizations, the inclusion of this statement in the brochure clearly implies that these groups have endorsed CRI's testing program and self-proclaimed standards. This is simply not the case.

Between February and April of this year, our office conducted a survey of 87 carpet retailers in the State of New York, to evaluate the "green tag" program. The most frequent response of retailers to the question: What does the "green tag" mean? Was that the tag means that the carpets are safe.

One carpet salesman in Westchester went so far as to refer to the tag as a safety sticker. Our office has just released a report detailing the results of this investigation. It is called "Carpet and Indoor Air: What You Should Know." I provided copies to the committee and request that it be placed into the hearing record.

Mr. SYNAR. Without objection it will be.

[The report is filed for the record in the subcommittee office.]

Mr. SYNAR. If you can begin to summarize, Ms. Suchman.

Ms. SUCHMAN. Yes.

The program initiated by CRI is, at best, misleading. There are no generally recognized safety standards for air emissions from carpets. The scientific research is continuing. In light of a limited understanding of the potential health effects of emissions from carpets, there can be no safety claims made. Instead, the public should be fully informed as to the possible hazards associated with carpet emissions pending the outcome of the ongoing research.

We would, therefore, request that this oversight committee direct the EPA and the CPSC to do three things: One, to step up the pace of the research being conducted, which I believe Chairman Synar has already done; two, insist that CRI withdraw its "green tag" program; and three, collaborate quickly on procedures for requiring public notice about the potential health effects of indoor air emissions from carpets.

In view of the many questions about carpets, we believe very strongly that now is the time to err on the side of safety. People, not carpets, should get the benefit of the doubt.

Thank you very much.

[The prepared statement of Ms. Suchman follows:]

STATEMENT OF  
ROBERT ABRAMS  
ATTORNEY GENERAL OF NEW YORK  
Before The  
SUBCOMMITTEE ON ENVIRONMENT, ENERGY,  
AND NATURAL RESOURCES  
Of The  
HOUSE COMMITTEE ON GOVERNMENT  
OPERATIONS  
JUNE 11, 1993

Delivered by:

E. Gail Suchman  
Assistant Attorney General  
Environmental Protection Bureau

STATEMENT OF  
ROBERT ABRAMS  
ATTORNEY GENERAL OF NEW YORK  
Before The  
SUBCOMMITTEE ON ENVIRONMENT, ENERGY,  
AND NATURAL RESOURCES  
Of The  
HOUSE COMMITTEE ON GOVERNMENT  
OPERATIONS  
JUNE 11, 1993

Good morning. I want to thank Congressman Synar and the other members of the subcommittee for inviting me here today to testify about the need to inform consumers of potential health risks associated with indoor air emissions from carpets.\*

In 1989, a consumer from Kingston, New York, complained to my office that she and her husband had suffered respiratory illness as a result of new carpet installed in their home. Upon further investigation, we learned that from 1988 to 1990, the U.S. Consumer Products Safety Commission (CPSC) had received over 500 complaints about adverse health effects suffered by people after new carpets were installed in their homes. The complaints described a variety of symptoms: for example, respiratory difficulties, including the aggravation of previously existing conditions such as asthma, headaches, burning eyes, nose and

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\* The term carpets as used in this testimony includes rugs, carpeting, binding, backing, padding, cushioning, adhesives, sealants, and chemical additives such as fungicides, pesticides, soil repellents and dyes.

throat irritation, sleeplessness and fatigue, nausea, vomiting, rashes and the development of immune system disorders. The complaints continue. Since 1990, CPSC has received several hundred more complaints.

There are dozens of potentially toxic chemicals used in the manufacture and installation of carpets and which may be emitted from carpets. If emitted into our indoor environment, these chemicals contribute to the degradation of the air we breath in our homes and offices. Several of these chemicals have been classified by the U.S. Environmental Protection Agency (EPA) and other authorities as known or probable human carcinogens.

While there are no definitive scientific studies linking specific air emissions from carpets with the reported symptoms, the symptoms are consistent with known effects of the various chemicals emitted from carpets. We have all come to understand the folly in waiting too long to react to health complaints associated with such potentially toxic substances. Therefore, in 1991, together with 26 other State Attorneys General, I petitioned the CPSC asking it to require that warnings and informational brochures be given to consumers at the point of sale. Warnings would alert the public that some people may be sensitive to the chemicals in new carpets and that, while not proven effective as a universal remedy, good ventilation during installation may be useful in dissipating at least some of the chemicals emitted. By widely distributing educational materials, susceptible individuals might be able to avoid some potential

problems.

Twice we were rebuffed by CPSC. We then issued our own consumer alert in order to provide New Yorkers with information concerning the potential health effects associated with air emissions from carpets (attached).

Since 1991, the scientific debate over the potential health effects associated with air emissions from carpets has continued to rage. Dr. Rosalyn Anderson, who will testify later at this hearing, has conducted studies which show neurological and respiratory effects on mice exposed to emissions from carpets. In some cases, the mice died. A consultant for the Carpet and Rug Institute (CRI), an industry trade association, has replicated Dr. Anderson's results. EPA continues to conduct studies. It is our hope that these studies will lead to the establishment of federally mandated emission limits or other appropriate regulation to protect public health.

While all this scientific investigation is ongoing, CRI has recently instituted a so-called "green seal" program. This program purports to certify that carpets meet certain indoor air quality standards. While there are no government approved air emission standards for carpets, CRI has, in fact, set its own standards. A carpet manufacturer may obtain a green seal for an entire product line simply by having one small piece of carpet tested once a year for emissions of only four components. CRI's own data indicates that at least 86 percent of all carpets tested will meet its standards without any alteration or reduction in

the use of chemicals in the manufacture of those carpets. This means that people are being exposed to the exact same carpets today with the green seal that they were exposed to before the green seal program was instituted.

And what does this program tell us? It says that the carpets we are buying are "safe". Look at the green tag provided by CRI (copy attached). These are placed on the carpet sample in the retailer's sample book. The green color and wording on the tag reinforce the safety message. While the back of the tag recommends ventilation of newly installed carpet, an important step in minimizing exposure, the tag is typically glued on to the carpet samples preventing consumers from even reading the ventilation guidelines.

A brochure (attached) that accompanies the green seal explains that the program is to ensure that "the carpet you buy is environmentally responsible" and implies that people should feel confident about carpet safety when they buy carpets bearing the green seal. The use of the term "environmentally responsible" conjures up a vision of a carpet manufactured, distributed, installed, used and disposed of without any adverse environmental impacts. This goes well beyond any air quality claims made through the green seal program. In addition, CRI's brochure includes a statement that several governmental agencies, including EPA and CPSC, and well known citizen groups are represented on its indoor air quality panel. Despite a meager attempt to clarify the involvement of these organizations, the

inclusion of this statement in the brochure clearly implies that these groups have endorsed CRI's testing program and self proclaimed standards. This is simply not the case.

Between February and April of this year, my office conducted a survey of 87 carpet retailers in the State of New York to evaluate the green seal program. The most frequent response of retailers to the question, "What does the green seal mean?," was that the seal means that the carpets are safe. One carpet salesman in Westchester went so far as to refer to the seal as a "safety sticker". My office has just released a report detailing the results of this investigation. Vermont, Connecticut and Oregon have conducted similar surveys and have joined us in issuing the report.

This program initiated by CRI is at best misleading. There are no generally recognized safety standards for air emissions from carpets. The scientific research is continuing. In light of a limited understanding of the potential health effects of emissions from carpets, there can be no safety claims made. Instead, the public should be fully informed as to the possible hazards associated with carpet emissions pending the outcome of the ongoing research.

I would therefore request that this oversight committee direct the EPA and CPSC to do three things: 1) to step up the pace of the research being conducted, 2) to insist that CRI withdraw its green seal program, and 3) to collaborate quickly on procedures for requiring public notice about the potential health

effects of indoor air emissions from carpets. We are aware of fact sheets prepared by CPSC and EPA in the fall of 1992 on the subject of carpets and air quality. In fact, in some respects they appear modelled after New York's consumer alert. At a minimum, these fact sheets must be updated and references to CRI's program deleted. In addition, a system must be devised for their dissemination which could include their availability in retail stores. My office stands ready to assist this subcommittee and the agencies in drafting such information materials.

In view of the many questions about carpets, I believe very strongly that now is the time to err on the side of safety. People, not carpets, should get the benefit of the doubt. Thank you.

GS:FC D:Carpet.Tes

Attorney General Robert Abrams  
New York State Department of Law

Consumer Alert

## CHEMICALS IN NEW CARPETS POSE POTENTIAL HEALTH HAZARD

On April 11, 1991, Attorney General Abrams petitioned the federal Consumer Product Safety Commission (CPSC) to require health warning on new carpeting and installation materials, which contain as many as 120 chemicals - some of them toxics and carcinogens.

According to the Attorney General, the CPSC has received 500 complaints about dangerous carpet fumes: hundreds of consumers have complained of health problems including flu-like symptoms, rashes, worsened respiratory conditions, asthma and permanent multiple chemical sensitivities, following exposure to new carpet materials.

### CHEMICALS IN CARPETING

The rug dyes, adhesives, synthetic fibers, carpet backing and padding are all potential sources of toxic chemicals. The substance called 4-phenylcyclohexene (4PC), which gives carpets their distinctive odor, is one chemical commonly found in carpets. Other chemicals emitted from carpeting and/or installation materials are toluene, xylene and benzene. Additionally, many carpets are treated with fungicides, pesticides and stain resistant substances which also contribute to fumes. Formaldehyde fumes may originate from some of the adhesives used in carpet installation.

### HEALTH CONSEQUENCES

Many of the chemicals emitted are toxic and some are known or suspected to cause cancer and birth defects. No one knows the long-term health risks from low-level exposure to carpet chemicals. Short-term effects which have been reported include respiratory tract irritation as well as skin rashes. Some people claim to have developed asthma and others reported that an existing asthmatic condition worsened following new carpet installation. Other people tell of developing hypersensitivity to a broad range of chemicals found in many common consumer products; such hypersensitivity may persist even if the carpet is removed. People who smoke, have allergies, or suffer from respiratory disorders may be more prone to experiencing symptoms when exposed to new carpeting. Further, the chemicals pose a greater risk to small children. Pregnant women should also avoid these fumes as they may be harmful to the child.

### MINIMIZING EXPOSURE

To minimize exposure to chemical fumes from new carpets, it is important to have adequate ventilation with plenty of fresh air for at least the first two-to-four weeks after installation. Leave windows open and use floor fans if possible. With adequate ventilation, release of toxic fumes should subside during the first few weeks. Washing or shampooing new carpets will have little effect as most of the chemicals in carpeting are not water soluble and thus will not be removed by washing.

Even before new floor coverings are installed, removal of old carpets can discharge large quantities of dust and mold into the air. These particles can cause irritation and some people are allergic to them. Homeowners removing old carpeting should wear a face mask (available at many hardware and lumber stores) and should vacuum the area thoroughly. To avoid the proliferation of mold and mildew when new carpeting is installed, be certain that the floor is thoroughly dry.

When buying a rug, the least toxic options include hand-made cotton or wool rugs which have not been chemically treated. However, even natural fiber rugs, if they have been dyed, if they have synthetic backing or padding, or if they use styrene butadiene to bind the backing

to the weave, or if they are installed with a solvent or formaldehyde-containing adhesive, are potential sources of toxic fumes. People with asthma or allergies may even be sensitive to natural fibers.

Consumers may consider testing for allergies or chemical sensitivities by taking home rug or carpet and padding samples and keeping them near for at least two weeks prior to purchase. For example, you might keep them next to the bed where you sleep. However, since symptoms may appear later than one month after installation and the sample you test will not contain the adhesives which may be used to install the carpet in your home, this test, while helpful, is not fool proof. If possible, avoid the use of adhesives in installation by using an alternative method.

### **SYMPTOMS**

If after installing new carpeting you experience "flu-like" symptoms such as watery eyes, runny nose, nausea, headache and fatigue; breathing difficulty; burning sensations in the eyes, nose or throat, you may be reacting to chemicals coming from the carpet. If these symptoms decrease or disappear after you have been away from the carpeting for a day or two, the likelihood of a causal effect is increased. If symptoms persist or reoccur when in contact with the carpet, you may wish to consult your physician and have your symptoms medically evaluated.

### **PROPOSED WARNINGS**

Attorney General Abrams is requesting the CPSC to require health warnings on new carpeting and installation materials. Warning labels, posters in stores and free pamphlets to alert consumers to the potential health hazards would be mandatory. The warnings would be attached to all rug or carpet packaging and posted in all carpet stores and departments. In addition to listing possible adverse reactions, the warnings would specifically note that pregnant women and infants may be especially vulnerable to chemicals used in carpeting. Consumers would also be advised to fully ventilate rooms where new carpets have been installed.

### **CARPET MAINTENANCE**

Carpet cleaning and the application of stain-resistant treatments can also be sources of health problems. Moisture left by incomplete drying after shampooing or steam-cleaning encourages the growth of micro-organisms in the carpeting which may cause allergic reactions. Carpet shampoos can leave detergent residues that may cause respiratory tract irritations. Some consumers have reported developing chemical sensitivities after their carpet was treated with substances to promote stain resistance.

Prepared as a public service by the Attorney General's Environmental Protection and Consumer Protection Bureaus and the Office of Public Information. For free copies of this Consumer Alert write: Office of Public Information, New York State Department of Law, 120 Broadway, New York, New York 10027.

**IMPORTANT****IAQ INSTALLATION GUIDELINES**

- Vacuum old carpet before removal.
- Vacuum floor immediately after old carpet and cushion have been removed.
- During installation, supply plenty of fresh air. Open windows and doors, if possible. Consider using window fans or other means to remove air from the area. If possible, continue this process for 48 - 72 hours after installation.
- Ask for low chemical release floor covering adhesive (if carpet is to be glued to floor).

**COMMON SENSE and  
FRESH AIR VENTILATION  
are very important!**

## **INDOOR AIR QUALITY CARPET TESTING PROGRAM**

**product type: #**

**FOR MORE INFORMATION  
The Carpet and Rug Institute  
1 - 600 / 882-8846**



**INDOOR AIR QUALITY  
PROGRAM  
FOR  
CARPET**



**INDOOR AIR QUALITY  
CARPET  
TESTING PROGRAM**

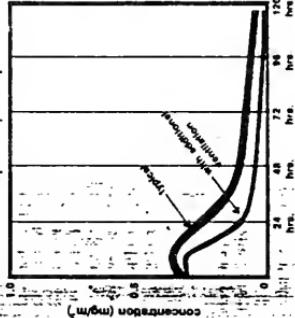
FOR MORE INFORMATION  
The Carpet and Rug Institute  
1-800/882-8848

Look for this label!

**CHART 1: PRODUCT COMPARISONS**  
Total release of chemicals (at first 24 hrs.)



**CHART 2: CARPET**  
chemical release drops rapidly,  
fresh air ventilation  
will further speed up this process



**IMPORTANT**

**IAQ MAINTENANCE  
GUIDELINES**

- Clean spills promptly and thoroughly.
- Vacuum at least twice weekly, concentrating on "high traffic" areas.
- Use a vacuum cleaner with revolving brush or beater-bars and strong suction for the best overall cleaning.
- Keep the vacuum cleaner in good condition. Change the disposable bag regularly, and check for worn belts.
- Place doormats at the entrances of your home. This will help prevent "tracked-in" dirt from accumulating in the carpet.
- Professionally clean your carpet at least once every 12 to 18 months. Be sure to ventilate the area with fresh air during and at least 24 hours after this process.

**COMMON SENSE AND  
FRESH AIR VENTILATION  
ARE VERY IMPORTANT!**

The Carpet and Rug Institute is the national non-profit trade association for the carpet and rug manufacturing industry. Its membership is comprised of manufacturers and suppliers who represent 91% of all carpet produced in the United States. Established in 1969, the CRI serves the industry and consumers with practical, technical, educational, and issue related information.

While carpet types wearing the label have been tested in accor-  
dant with the CRI-IAQ program,  
of equal importance are the IAQ guidelines for  
installing and maintaining carpet. You, the  
consumer, can fulfill this responsibility by follow-  
ing the guidelines.

**IMPORTANT**

**IAQ INSTALLATION GUIDELINES**

- Vacuum your old carpet before removal to minimize the amount of dust particles.
- Vacuum the floor immediately after the old carpet and cushion have been removed.
- Open windows and doors, if possible, for an adequate supply of fresh air. Consider using window fans, room air conditioning units, or other means to exhaust chemicals to the outdoors.
- Continue operating your ventilation system at normal room temperature for 48-72 hours after installation. If possible, leave doors and windows open to increase the flow of fresh air.
- If your carpet is to be glued to the floor, you may wish to ask for a low VOC emitting (low chemical release) floor covering adhesive.
- Make sure a professional installer is chosen who follows the installation guidelines (CRI-105) published by The Carpet and Rug Institute.
- If you consider yourself to be unusually sensitive, you may wish to avoid the area or leave the premises while the carpet is being removed or installed.

you may wish to make arrangements with your dealer or the person responsible for installation to allow the new carpet to "rest" unrolled in a well-ventilated area for a day or so before installation. If possible, (there may be a charge)

For more information about the IAQ Program  
Call 1-800/882-8846

B0782

**Could carpet affect my health?**

There are millions of people who have bought carpet and have had no problems. Most people are not affected by carpet odors or carpet chemicals. Some people may not like certain odors. A few people have reported that they got sick from carpet, while it may also be possible that they may have been affected by other chemicals in the air that have little or nothing to do with carpet. Research is being conducted to investigate health effects. We feel that it is important to study carpet on a continuing basis and the CRI/IQO program helps us learn more about carpet and how it affects the air we breathe. The more we learn, the more we can help our customers. This program cannot guarantee good health because everybody reacts differently, but it does tell you that the people making carpet are working very hard to make the best possible carpet and make the air quality better. So, look for carpet with the label which tells you that carpet manufacturers are committed to help our environment.

**What is a carpet product type?**

A product type can have many styles and colors but it must have the same basic fiber type, chemical content, dye process, and backing type.

**How often is carpet tested?**

A sample from every carpet type will be collected by CRI at least once per year. These will be tested by a laboratory outside the industry with very specific indoor air quality testing equipment. If the carpet that passed is tested one year later, and it fails, then the manufacturer will be asked to make changes. If it passes later on, then that product will be tested more often.

**Is there a lot of pollution caused by new carpet?**

No. Chemicals from carpet that go into the air are much less than chemicals that come from other products used inside such as paints, paint strippers, vanishes, wood finishes, waxes, caulkings, adhesives, etc.

**Is the carpet bad if I can smell it?**

No. New carpet (like a new car) can have an odor. A chemical called 4-phenoxyethene (4-PC) that comes from some new carpet may have an odor for a short period of time after installation. The 4-PC comes from the latex glue used to hold the carpet fibers together. Most of the odor is gone in about a week, sometimes in days.

**What does the CRI - I.Q. (label) mean?**

A label, like the one on this brochure, on the back of a carpet sample means that carpet like this has been tested and has passed the Indoor Air Quality (IAQ) Carpet Testing Program requirements of The Carpet and Rug Institute.

**What are the IAQ Program requirements?**

The program requires carpet to be tested for chemicals which could release into the air. The total chemical given off must be less than 0.6 milligrams per meter square per hour (0.6 mg/m<sup>2</sup>/hr). That is extremely low compared to some other products used in textile, your house or office (see Chart 1 on the back of this brochure).

**What happens when carpet does not pass the program requirements?**

If a particular carpet product type does not pass the program requirements, the manufacturer cannot use the label. When manufacturers make changes in their carpet, they may have it tested again. Only if the carpet passes the requirements can the manufacturer use the label on carpet samples of the same product type.

**QUESTIONS ABOUT THE CRI INDOOR AIR QUALITY CARPET TESTING PROGRAM****TO OUR VALUED CUSTOMERS:**

Toddy, indoor air quality has become an important environmental issue to many Americans, and rightly so. We spend 90 percent of our time at home or at work, often in energy-efficient buildings that lack fresh air ventilation. Add in that the introduction of new products and furnishings, and you have the potential for a buildup of indoor air pollution.

Questions have been raised about pollution by all kinds of interior products, including new carpet. It is true that new carpet can give off low levels of chemicals, but they are extremely small when compared to other materials used indoors. Nevertheless, an industry-wide pollution program has been established in effort to reduce indoor air pollution even further. We have developed a carpet indoor air quality (IAQ) program to ensure that the carpet you purchase is environmentally responsible by meeting specified testing requirements for indoor air quality. Our goal for the IAQ program is to help customers make informed buying decisions about carpet.

To help us understand and meet the needs of consumers, we organized an indoor air quality panel made up of individuals from government agencies and consumer oriented groups. The panel will also provide CRI with insight about the general structure and operation of the CRI Indoor Air Quality Program and keep us up to date on new developments.

You will probably have some questions about indoor air quality and the industry's new program when you see the certification label on carpet. Please take a minute to review the questions and answers in this brochure. If you would like more IAQ information, you may call 1-800/882-8816.

For generations, responding to consumer needs and concerns has been our top priority. The carpet industry looks forward to continuing that commitment to you in the years to come.

Sincerely,  
John VanDecker  
President of CRI

**Could carpet affect my health?**

There are millions of people who have bought carpet and have had no problems. Most people are not affected by carpet odors or carpet chemicals. Some people may not like certain odors. A few people have reported that they got sick from carpet, while it may also be possible that they may have been affected by other chemicals in the air that have little or nothing to do with carpet. Research is being conducted to investigate health effects. We feel that it is important to study carpet on a continuing basis and the CRI/IQO program helps us learn more about carpet and how it affects the air we breathe. The more we learn, the more we can help our customers. This program cannot guarantee good health because everybody reacts differently, but it does tell you that the people making carpet are working very hard to make the best possible carpet and make the air quality better. So, look for carpet with the label which tells you that carpet manufacturers are committed to help our environment.

**OTHER LITERATURE AVAILABLE FROM YOUR RESELLER OR CRI**

*A Guide to Carpet and Your Indoor Environment, Indoor Air Quality and New Carpet - What You Should Know*, published by the U.S. EPA.

\*CRI INDOOR AIR QUALITY PANEL, CRI is conducting on a continuing basis with individuals from the following organizations:

**Government**  
General Services Administration  
U.S. Consumer Product Safety Commission  
U.S. Environmental Protection Agency  
Non-Governmental  
American Federation of State, County and Municipal Employees  
American Lung Association  
American Society of Interior Designers  
International Facility Management Association

**Research Triangle Institute**  
These organizations have provided valuable input to the CRI/IQO Carpet Testing Program. However, individual representation to be True does not necessarily constitute or imply official endorsement by the organization.

Mr. SYNAR. Mr. Peterson.

**STATEMENT OF ERIC PETERSON, EXECUTIVE DIRECTOR, U.S.  
CONSUMER PRODUCT SAFETY COMMISSION**

Mr. PETERSON. Thank you, Mr. Chairman. And good morning.

Before I begin, it is incumbent upon me to note that the views that I present here today are those of the U.S. Consumer Product Safety Commission staff and do not necessarily reflect the individual, collective, or official positions of the agency's commissioners.

From 1988 to the present, CPSC received about 650 complaints related to carpets. The CPSC staff believes the widespread publicity given the carpet issue contributes to the volume of complaints received by the agency. Many complaints were received in 1989 shortly after CPSC mailed a notice to allergists in the United States and followed up with a press release inviting consumers to report alleged health reactions to newly installed carpets.

This solicitation established CPSC's concern about claims of corporate-related illness. And this concern continues to be reinforced by the news media. There was also an increase in the number of complaints following the national attention generated by the findings of Anderson Laboratories.

All consumer complaints received by CPSC are reviewed and some are selected for further followup. Criteria for further followup include that health and exposure effects are well-documented and confounding factors are minimized. These include onsite visits.

Since 1988, CPSC has led the Federal Government's efforts to identify, understand, and remedy consumer concerns over carpet emissions. Of the 116 complaints that the agency has received since October, for example, 15 have warranted further examinations on the basis of the criteria I outlined.

Some recent consumer complaints were forwarded to CPSC by the Environmental Protection Agency, State agencies, Consumers Union, television stations, and others.

While complaints are extremely useful as a warning of the emergence of a potential health problem, they do not establish or clearly identify a health risk or determine the scope or seriousness of a hazard. CPSC initiated its study in 1989 to gather information about the nature of complaints that were reported to occur after new carpet installation. The study included indepth evaluations from 335 residents in 206 households.

The results of this investigation prompted the Commission to initiate a program in fiscal year 1990 to determine what chemicals are emitted from carpet and if those chemicals cause the health effects reported by consumers to be associated with carpet installation. In the spring of 1992, CPSC completed its study of chemicals emitted from several carpet types collected directly from carpet mills.

The final report on all of this testing was released in March. It is available to the public and copies have been provided to this committee. Approximately 40 emitted chemicals were identified in the study. CPSC staff examined all available toxicity data, and estimated the levels of the major chemicals to which consumers would be exposed after installation of carpet.

The CPSC staff, after this analysis, found no evidence that the chemicals emitted from the carpets examined in its study would present a hazard to consumers if the carpets are properly installed. This does not mean that carpets cannot cause illness or that all carpets are safe. One reason for this is that many of the chemicals in carpets have not been adequately studied toxicologically, especially at the lower levels associated with installation of carpet.

For example, data on the irritancy and neurotoxic potential of some chemicals at levels such as those emitted by carpet are not available in the scientific literature. CPSC plans, in fiscal year 1994, to test the irritancy and neurotoxic properties of the major chemical constituents of carpet. A report on this work is scheduled to be completed in early 1995.

CPSC continues to investigate emissions from the total carpet system. This effort will hopefully also be finished in 1994.

In April 1991, the CPSC received a submission from the New York State attorney general's office. This was a request for the CPSC to issue a rule requiring that consumers be warned that medical problems could occur after installation of carpet.

The submission was not docketed because it did not meet the procedural requirements governing petitions for rulemaking. Specifically, it did not set forth facts that established that issuance of the requested rule was necessary or that it would remedy the alleged hazard.

The submission contained a list of chemicals that may be present during the production of carpets and a description of health effects that may result from exposure to high levels of those chemicals. However, no information was provided about the amounts of these chemicals emitted into the household following carpet installation and the health effects at the lower levels likely to occur.

Mr. SYNAR. Mr. Peterson, could you begin to conclude?

Mr. PETERSON. Yes, Mr. Chairman.

Without such information, the Commission cannot determine if the requested rule is necessary to eliminate or reduce adverse health effects alleged to be associated with installation of new carpet.

That submission notwithstanding, CPSC is firmly committed to continuing its work on carpet emissions. In fact, there is nothing CPSC is doing now that it would not have done had it docketed the attorney general's submission, except initiate a formal rulemaking. Before that formal rule could be promulgated, all the work and all the findings described would be needed to justify the rule.

I will end my testimony there and we can get into questions and answers.

[The prepared statement of Mr. Peterson follows:]

TESTIMONY OF  
ERIC C. PETERSON  
EXECUTIVE DIRECTOR  
U.S. CONSUMER PRODUCT SAFETY COMMISSION  
BEFORE THE  
HOUSE OF REPRESENTATIVES  
ENVIRONMENT, ENERGY, AND NATURAL RESOURCES  
SUBCOMMITTEE OF THE  
COMMITTEE ON GOVERNMENT OPERATIONS  
WASHINGTON, D.C.

JUNE 11, 1993

The views presented here are those of the U.S. Consumer Product Safety Commission staff and do not necessarily reflect the individual, collective, or official position(s) of the agency's Commissioners.

Good morning. I am pleased to again appear before Congress to discuss the investigation of carpets by the U.S. Consumer Product Safety Commission (CPSC). Before I begin, it is incumbent upon me to note that the views presented here are those of the U.S. Consumer Product Safety Commission staff and do not necessarily reflect the individual, collective, or official position(s) of the agency's Commissioners.

From 1988 to the present, CPSC received about 650 complaints related to carpet. The CPSC staff believes the widespread publicity given the carpet issue contributes to the volume of complaints received by the agency. Many complaints were received in 1989 shortly after CPSC mailed a notice to allergists in the United States and followed up with a press release inviting consumers to report alleged health reactions to newly installed carpet. This solicitation established CPSC's concern about claims of carpet-related illness, and this concern continues to be reinforced by the news media. There was also an increase in the number of complaints following the national attention generated by the findings of Anderson Laboratories. Some recent consumer complaints were forwarded to CPSC by the Environmental Protection Agency, state agencies, Consumers Union, television stations, and others.

While complaints are extremely useful as a warning of the emergence of a potential health problem, they do not establish or clearly identify a health risk or determine the scope or seriousness of a hazard. CPSC initiated its study in 1989 to gather information about the nature of complaints that were reported to occur after new carpet installation. The study included in-depth evaluations from 335 residents in 206 households. The study found that the most frequently reported symptoms were watery eyes, runny nose, burning sensation in the eyes, nose and throat, headaches, rashes, and fatigue. Often, the onset of symptoms occurred immediately or within a few days following carpet installation. Although many complainants saw a physician for treatment, most physicians treated the symptoms but did not typically relate the reported symptoms to the carpet installation. One reason for this is that there are many factors that contribute to these common adverse reactions. A report on the results of this work was completed and released to the public in 1990.

The results of this investigation prompted the Commission to initiate a program in fiscal year 1990 to determine what chemicals are emitted from carpet and if those chemicals cause the health effects reported by consumers to be associated with carpet installations. In the spring of 1992, CPSC completed its study of chemicals emitted from several carpet types collected directly from carpet mills. This research was conducted under interagency agreements with the Department of Energy at Lawrence Berkeley Laboratory and the National Center for Toxicological Research, and at CPSC's Health Sciences Laboratory.

The final report on all of this testing was released in March. It is available to the public and copies have been provided to this Committee. Approximately 40 emitted chemicals were identified in the study. CPSC staff examined all available toxicity data, and estimated the levels of the major chemicals to which consumers would be exposed after installation of carpet. The CPSC staff, after this analysis, found no evidence that the

chemicals emitted from the carpets examined in its study would present a hazard to consumers if the carpets are properly installed. This does not mean that carpets cannot cause illness or that all carpets are safe. One reason for this is that many of the chemicals have not been adequately studied toxicologically, especially at the lower levels associated with installation of carpet. For example, data on the irritancy and neurotoxic potential of some chemicals at levels such as those emitted by carpet are not available in the scientific literature. CPSC plans, in fiscal year 1994, to test the irritancy and neurotoxic properties of the major chemical constituents of carpet. A report on this work is scheduled to be completed in early 1995.

CPSC continues to investigate emissions from the total carpet system. In residential installations, a carpet cushion is typically installed between the carpeting and flooring. Carpet cushion may also emit chemicals during and following carpet installation. Samples of cushions are currently being collected and analyzed. This effort will be finished in fiscal year 1994.

Recently, CPSC staff worked with the EPA in a study regarding the experimental findings from Anderson Laboratories. CPSC, as the sample custodian, collected the samples from consumers who experienced problems, performed in-depth investigations of each reported incident at the collection sites, and distributed the samples to the EPA and to Anderson Laboratories. The results of this study are being discussed by other presenters today. The CPSC will continue working with the EPA and others to understand the implications of Anderson Laboratories' findings.

In April 1991, the CPSC received a submission from the New York State Attorney General's Office. This was a request for the CPSC to issue a rule requiring that consumers be warned that medical problems could occur after installation of carpet. The submission was not docketed because it did not meet the procedural requirements governing petitions for rulemaking. Specifically, it did not set forth facts that established that issuance of the requested rule was necessary or that it would remedy the alleged hazard. The submission contained a list of chemicals that may be present during the production of carpets and a description of health effects that may result from exposure to high levels of those chemicals. However, no information was provided about the amounts of these chemicals emitted into the household following carpet installation and the health effects at the lower levels likely to occur. Without such information, the Commission cannot determine if the requested rule is necessary to eliminate or reduce adverse health effects alleged to be associated with installation of new carpets and related products.

The CPSC staff participated in the Carpet Policy Dialogue sponsored by the EPA involving the carpet industry, other Federal government agencies, and public organizations. CPSC staff, which has a lot of experience in consumer focus group testing, will shortly begin working with the EPA on methodologies to evaluate consumer perceptions of the carpet industry's green tag program. CPSC also developed a fact sheet that provides the public with information about carpet emissions and some practical steps to consider during

the purchase and installation of new carpet. More than five thousand copies of the CPSC fact sheet have been distributed to interested consumers, CPSC regional offices, and state and local consumer protection agencies. CPSC and EPA are also developing a joint fact sheet. Both agencies are exploring ways of getting this information into the hands of prospective carpet buyers prior to or at the time of purchase.

If consumers are concerned about carpet or want further information, they can either call the CPSC's hotline number (1-800-638-CPSC), or write to the CPSC. Consumers who contact the CPSC regarding carpet can request a free copy of the latest fact sheet. Those calling the hotline can also choose to hear a recording which gives the actual text of the fact sheet. Those consumers with complaints can choose to be interviewed in order to file an official complaint. All complaints are reviewed, and some are selected for further follow-up. Criteria for further follow-up include that health and exposure effects are well-documented, and confounding factors are minimized. Such follow up includes on-site investigation by a CPSC field investigator.

Since 1988, the CPSC has led the Federal government efforts to identify, understand, and remedy consumer concerns over carpet emissions. In the last six months alone, the CPSC staff has completed and released the report on emissions of chemicals from carpet, began work on testing of carpet cushion, and reviewed 116 further consumer complaints. The staff also prepared a fact sheet, and worked with the EPA and Anderson Laboratories on potential irritation and neurotoxicity of carpets. The agency is approaching this problem with a systematic investigation of what chemicals may be released from carpet and carpet cushion, what levels of these chemicals may occur in homes, and what adverse effects may occur to consumers at these levels. If appropriate, this is followed by a determination of what actions may be taken to reduce the hazards associated with these emissions. CPSC staff considers the ongoing investigation of chemical emissions from carpet systems to be an important part of its Indoor Air Quality Program and has sustained a high level of activity and contribution in this area over the last five years. CPSC takes the consumer complaints very seriously, but cannot act until or unless there is sufficient scientific justification. To do otherwise would not be in the best interests of the public.

Thank you for the opportunity to appear here today.

Mr. SYNAR. Thank you. Ms. Sands, let us begin with you. I will recognize myself for 5 minutes.

Were there any government sources of information before or after you purchased the carpet that you thought were very helpful to you?

Ms. SANDS. No, not really. I think it must have been 2 or 3 years after our exposure that I learned of the Consumer Product Safety Division and did call them. The person had me on the phone for almost 2 hours questioning me. They certainly didn't give me much help.

Mr. SYNAR. How much skepticism did you first find when you bought this to their attention?

Ms. SANDS. As a matter of fact, the person I talked to on the phone was quite rude to me and laughing part of the time during that 2 hours. It was very hard for me, at times I was ready to hang up. I did report it to the person's supervisor.

Mr. SYNAR. After all this media coverage which you have had, obviously, over the last 8 months and even before then, how many calls a week do you receive from around the country?

Ms. SANDS. I don't know that I could give you calls per week. It seems like when there is media coverage, I begin getting calls from outside my area. The last week for 3 days straight, the phone started ringing at quarter of 7 in the morning and rang until 10 o'clock in the evening.

I have had to put a recorded message on my phone telling people to call the attorney general's office or Mr. Sanders' office because I can't keep up with it anymore. My husband took three phone calls the night before last, he could not deal with just listening to three hurting victims. Probably after these hearings, I will have to change my phone number or take my phone completely out and go to the woods with my children or something.

I don't know why these people are not getting the calls, why they are coming to me.

Mr. SYNAR. Because maybe you are the only one who can tell them anything.

Ms. SANDS. I have to make it clear, too. I talk to them from a victim's point of view, not a doctor, not a lawyer, not a scientist. I can just say what I experienced.

Mr. SYNAR. Mr. Peterson, has CPSC asked EPA to require these chemicals which are inadequately characterized to be tested under some authority, especially TSCA?

Mr. PETERSON. No, sir. We have done testing in our own facility and set forth our own procedure. We have worked cooperatively with EPA on the testing. We do not and I do not anticipate that we will ask EPA to invoke TSCA to facilitate our ability to do a study.

Mr. SYNAR. Why not?

Mr. PETERSON. Because we are not an agency of EPA. We are an independent Federal agency. We have our own protocols. We cooperate with EPA, but there is not really a necessity to use EPA's authority for us to proceed in an area.

Mr. SYNAR. You testimony also states that CPSC will pay for the data about the neurotoxic potential and the irritancy and other things about the chemicals.

Do you think it is right that the taxpayer should pay for the research or isn't that the responsibility of the people who make the products in the first place?

Mr. PETERSON. Again, we are working cooperatively with industry and with EPA in this area. Clearly that collaborative effort represents an investment on the part of industry as well.

Mr. SYNAR. Who should pay for the tests and the data, the taxpayers or the people who produce the products?

Mr. PETERSON. I think it is probably a shared responsibility.

[The information follows:]

With regard to who pays for testing, the reasons the responsibility should be shared are two:

1. There is no evidence that the chemicals which are being off-gassed are toxic at the levels found, and therefore this type of investigative research would fall into the routine nature of the agency's hazard analysis activity, and

2. CPSC has no authority to charge industry for such testing.

Mr. SYNAR. EPA has such authority under TSCA. The law, however flawed, states clearly that the responsibility for testing is on the manufacturer of the chemical products. Is that not correct?

Mr. PETERSON. I don't know EPA's laws.

Mr. SYNAR. Do you know TSCA?

Mr. PETERSON. We don't administer TSCA.

Mr. SYNAR. Concerning the petition by the 26 attorneys general, Mr. Peterson, are they all wrong in believing the consumers should be getting better information about the possible risk of carpets?

Mr. PETERSON. Mr. Chairman, they are not wrong, and neither is the CPSC in the position it took. The problem is a procedural problem that stems from the basis of the statute and the regulation the agency has to administer.

A rulemaking is a very serious, very rigorous process. The fact of the matter is, as I identified in my testimony, we are doing exactly everything that we would have done had we been able to docket the attorney general's petition.

[The information follows:]

With regard to petitioning the Commission:

Part 1051, 16 CFR, Chapter II clearly outlines the process and the requirements for petitioning the Commission for a rulemaking. That was what the Attorneys General were attempting to do. Specifically, to be considered a petition, the submission must "Set forth facts which establish the claim that the issuance, amendment, or revocation of the rule is necessary (for example, such facts may include personal experience; medical, engineering or injury data; or a research study . . . )."

It is recommended that the submission, "Describe the specific risk(s) of injury to which the petition is addressed, including the degree (severity) and the nature of the risk(s) of injury associated with the product and possible reasons for the existence of the risk of injury." Further, the submission should, "supply or reference any known documentation, engineering studies, technical studies, reports of injuries, medical findings, legal analyses, economic analyses and environmental impact analyses relating to the petition."

Mr. PETERSON. The problem is that the petition or the submission, which they wish to have considered as a petition, did not meet the threshold requirements so that the Commission could in fact docket it and proceed in a formal rulemaking.

Mr. SYNAR. I want to get into that in a second. You heard about the report released yesterday by the attorneys general in four States.

Mr. Peterson, if the CPSC found certain claims to be misleading, as they are contending, what authority would you have to stop those claims and how long would it take to make that order or regulation go into effect?

Mr. PETERSON. I am not following your question.

Mr. SYNAR. If the claims are truly misleading.

Mr. PETERSON. Whose claims, sir?

Mr. SYNAR. The claims by the carpet industry that these carpets with the "green tags" are safe. What authority do you have to stop such claims and how long would it take you to put a rule in effect to stop it?

Mr. PETERSON. We have no authority over truth in advertising or truth in labeling. Because the industry is undertaking that effort on their own, there are no Federal regulations which we administer that would correct that situation.

We are cooperating with industry in the review of the tag and we have provided comment to industry on what we think would be more appropriate language. But it is the industry's decision in the end as far as the statutes and regulations that we administer. It is their decision, not ours.

Mr. SYNAR. As such, when you mentioned in the petition to CPSC in your statement, I would like to note that the attorneys general of Oklahoma, Florida, and Ohio, all represented on this panel, have joined in that letter to the CPSC.

Is it common for attorneys general from 26 States to agree about anything?

Ms. SUCHMAN. Not at all. There has been a lot of talk about elected officials and hot air today. Certainly they represent different States, different parties, and different viewpoints.

Mr. SYNAR. Let me ask you about this petition. As I understand it, the CPSC logic would mean that you, the petitioner, must show what the risk is and how your idea for a remedy would mitigate the problem.

Is that correct, is that why you did not "meet the threshold?"

Ms. SUCHMAN. Yes. It was rejected because they said we could not prove that the reported health effects were directly related to emissions from carpets.

Mr. SYNAR. Ms. Suchman, don't you think that is a pretty high burden to place on a petitioner to start a review process?

Ms. SUCHMAN. It is an impossible standard and we don't believe the regulations for the CPSC require it.

Mr. SYNAR. Ms. Suchman, are you familiar with the Toxic Substances Control Act?

Ms. SUCHMAN. Yes, I am.

Mr. SYNAR. Sometimes it is referred to as the Toxic Substances Conversation Act because it seems so difficult for EPA to get anything done under TSCA. But it gives authority to EPA to require warning labels on consumer products.

Have you ever petitioned EPA to act on carpet warnings under TSCA?

Ms. SUCHMAN. Our office to date has not utilized section 21 of the Toxic Substances Control Act which allows us to petition EPA to put warning labels on consumer products. We don't have a lot of experience with it, but it is under consideration at this time.

Mr. SYNAR. You said that consumers commonly misinterpret the meaning of the green tags, the one that you held up. Is your office likely to file any kind much misleading claim action on the "green tag" program?

Ms. SUCHMAN. Certainly if the Carpeting and Rug Institute withdraws its "green tag" program, we would not continue any thoughts of filing a lawsuit. However, that is under consideration now along with various other options. We have attempted to negotiate and to work cooperatively with the Carpet and Rug Institute, but that has not resolved the matter.

Mr. SYNAR. Mr. Hastert.

Mr. HASTERT. Ms. Sands, you said you lived in your home prior to the time that you had the carpet installed. What did you have on the floor before that?

Ms. SANDS. Carpet.

Mr. HASTERT. You took old carpet out and put new carpet in?

Ms. SANDS. Yes.

Mr. HASTERT. And that is when the problems began?

Ms. SANDS. Yes.

Mr. HASTERT. You had no respiratory problems?

Ms. SANDS. I had one child who had asthma. I expected the carpets sooner. The carpet had been removed in December and it did not come. I had to wait until March for it. The floors were bare wood at that point.

Mr. HASTERT. Hardwood floors or just bare wood?

Ms. SANDS. Just bare wood.

Mr. HASTERT. How long did you live in your house before you changed carpets?

Ms. SANDS. Twelve years.

Mr. HASTERT. Twelve years prior, before the changing of the carpets?

Ms. SANDS. Yes.

Mr. HASTERT. What kind of heating system did you have in your home?

Ms. SANDS. Hot water baseboard heat.

Mr. HASTERT. And proper ventilation. You built your house and when you built it, you put a lot of ventilation in it? You never had a problem before that time?

Ms. SANDS. There is not an automatic ventilation system, if that is what you are asking.

Mr. HASTERT. No, I mean for an average house.

Ms. SANDS. It appeared to be the average house.

Mr. HASTERT. After the new carpet was removed from your house, there is still a residual, in your opinion?

Ms. SANDS. Yes, in the children's nursery, you could smell chemicals in the walls and the woodwork. It smelled like the carpet, a very strong odor in the children's room.

Mr. HASTERT. You never had this problem with the carpet you put in your house the first time? Is that correct?

Ms. SANDS. No.

Mr. HASTERT. You never had any smell like that before?

Ms. SANDS. I don't remember any offensive odor when we had carpet installed years ago.

Mr. HASTERT. So this is a unique situation, in your opinion, this kind of carpet?

Ms. SANDS. It is nothing I have ever run into before.

Mr. HASTERT. What made you choose the carpet, any special reason?

Ms. SANDS. Yes. I had some Country Living magazines that I showed the dealer that I was purchasing it from and that was the appearance that I wanted in my home.

Mr. HASTERT. Thank you. Mr. Chairman, I have not used up all of my time, if you would like to continue with your questions.

Mr. SYNAR. Thank you, Mr. Hastert. I will wait.

Mr. Sanders.

Mr. SANDERS. Thank you.

Mr. Peterson, would it be fair to say that the Consumer Product Safety Commission is supposed to be consumer friendly, that you are supposed to represent the consumers of America?

Mr. PETERSON. I think it is not only fair to say that. I think it is absolutely the proven record of the agency.

Mr. SANDERS. It is a proven record? I hope I will not shock you if there are many people who disagree with that assertion. But if somebody were to call up the Consumer Product Safety Commission today to express concern about carpets, who do they speak to? Who is on the other end of the line?

Mr. PETERSON. If they are calling on the hotline, they will talk to an operator who is trained to handle calls and to ask questions that would lead to the gathering of information that, in the case of those criteria that I outlined here this morning—

Mr. SANDERS. When we called you, we spoke to a tape recorder.

Mr. PETERSON. There are several levels. That is the first. You go through several levels. If you are asking me who do they talk to, I am telling you who they talked to. If you are asking me what happens when they call the hotline, that is different.

Mr. SANDERS. They talk to a tape recorder, is that correct?

Mr. PETERSON. They call the hotline and the first level of interaction is with a series of recorded messages.

Mr. SANDERS. The famous voice message thing? You mentioned a number before about how many calls, I think it was 600 and some—odd complaints. Is that the full story in terms of people calling the Consumer Product Safety Commission?

Mr. PETERSON. Remember, and you referred to it earlier this morning, there are individuals who call seeking information on the hotline. That is a very large number. Then there are those who stay on the hotline to speak to—

Mr. SANDERS. What is that number? Is that an important number for us to know? Let me see if I have it right. Correct me if I am wrong, sir. Consumer X calls the hotline and they talk to a tape recorder. The tape recorder says, if you have concerns about A, B, or C, carpets or whatever, press down button 9.

How many people press the button who say I have a concern about carpets?

Mr. PETERSON. Since October, I can give you that number. Since October, it is approximately 6,150.

Mr. SANDERS. That is exactly right. You didn't tell us that to begin with. Let's get the record straight. Correct me if I am wrong.

My understanding is now, when your tape recorder goes on and says, if you are concerned about carpets, press whatever the number is, 6,151 people have called that number since October. Is that correct?

Mr. PETERSON. That is right.

Mr. SANDERS. Considering the fact that not a heck of a lot of people know about your agency, I think that is a lot of telephone calls expressing concern about carpets.

Two, what you are told, as I understand it, is if you wish to make a complaint, press another number.

Mr. PETERSON. That is right.

Mr. SANDERS. Having gone through that process and having been transferred to I guess the third number, do you talk to a human being at that point?

Mr. PETERSON. I believe you talk to a human being at that point.

Mr. SANDERS. And we have had 600 some odd—

Mr. PETERSON. No. Since October, we have had 116 actual complaints with regard to carpets filed. Out of those 6,150 informational calls, 116 have resulted in actual filing complaints, and out of that 116, 15 have actually been able to provide—

Mr. SANDERS. 116 have hung on the line in order to do it?

Mr. PETERSON. They have provided information that has then resulted in the indepth investigations.

Mr. SANDERS. Ms. Sands, you contacted the Consumer Product Safety Commission, correct, when you had your problem?

Ms. SANDS. Yes.

Mr. SANDERS. Very briefly, did they show interest and concern about your problem? Is that an agency you would recommend to other people who have had similar problems?

Ms. SANDS. No, I would not. Like I say, the woman laughed at me on the phone. I hung on for almost 2 hours that I was on the phone answering questions. She laughed. I did contact someone working at EPA to see if they could help me find out who the supervisor would be in that department, and I called and complained about the way I was treated.

Mr. SANDERS. You have heard Mr. Peterson today and you heard the EPA earlier. You were here in October at a hearing we held in the Senate. What is your impression of the government response to the problem?

Ms. SANDS. Like I say, I am deeply saddened. It seems like they are more concerned about the mice than they are the victims. At this point, I really wish you would call, personally call, some of the physicians and get them involved in some type of forum, the physicians that have treated victims that have been poisoned.

Dr. Mark Cullen, the occupational health doctor at Yale who has written a book on multiple chemical sensitivity, pediatricians who have taken care of these sick children and seen the deterioration in their health before and after carpet exposures. Something has to be done for these victims.

Mr. SANDERS. Would it be fair to say, Ms. Sands, that for a period of time, you felt kind of isolated and that some of the people you made contact with thought there was something wrong up here and did not take your complaint seriously?

Ms. SANDS. Yes, I was very alone. It took me 3 years before I could find another victim. I can remember my children being so sick and the doctors asking what have they been exposed to, what was in the carpet and I could not tell them. I can remember calling EPA people and asking them, "Could you please test my carpet?" They said they could not do that.

About 4 years later, I finally got a method from an EPA scientist and bought it to a lab in Boston to detect chemicals that may be present in carpeting. Like I say, it seemed like I knocked on doors and nobody would help and, meanwhile, these children were very ill, you know, not even attending school.

Mr. SYNAR. Mr. Sanders, may I interject.

Mr. SANDERS. Yes.

Mr. SYNAR. Mr. Peterson, I want to go back to something Mr. Sanders was saying. Let's walk through this because I think I heard you say something I am very concerned about, 6,100 people have called the CPSC hotline since October. Of that the 6,100, 151 of them stayed on the line long enough to make a complaint; is that correct?

Mr. PETERSON. No, 116 of them chose, once they had heard the information about the carpet, they made a determination that their situation was similar to the situation described in the hotline tape and, as a result, choose to file a complaint.

Mr. SYNAR. From that 116, did you say 15 went on to the next step?

Mr. PETERSON. Fifteen of those complaints filed were able to provide us information, as I described in my testimony, such that we could then begin an indepth investigation of their situation.

Mr. SYNAR. So there is an investigation going on based upon those 15, correct?

Mr. PETERSON. That is correct.

Mr. SYNAR. What results have we got?

Mr. PETERSON. Those investigations are in process now.

Mr. SYNAR. Let me see if I have this straight. It only took 15 calls to start an investigation, but 26 attorneys general could not petition. Would it have been easier for them just to call the hotline? What do you say, Mr. Peterson?

Mr. PETERSON. Mr. Chairman, I am trying to be sensible about the response to that question.

Mr. SYNAR. I am, too. Fifteen citizens get a hotline investigation going and 26 attorneys general cannot?

Mr. PETERSON. Mr. Chairman, the request of the attorneys general is governed by this document.

Mr. SYNAR. So you are telling me I should tell the 26 attorneys general to call the hotline?

Mr. PETERSON. I am telling you that this is a major obstacle. You cannot do it by regulation, Mr. Chairman. You cannot do it by regulation, Mr. Chairman. The fact of the matter is that these 15 individuals have been responded to as have a number of other individuals, 142 individuals since 1988.

Mr. SYNAR. Mr. Peterson, let me interrupt you. The point is that the attorneys general would have gotten a better response calling the hotline and waiting to get to the third tier than they got from you the way they did; is that not correct?

Mr. PETERSON. No, that is not correct, Mr. Chairman.  
[The information Follows:]

With regard to the suggestion that the Attorney General should call CPSC's hotline to get a response:

CPSC began work on carpet emissions long before the Attorneys General ever made their submission, and the agency will continue to work on this issue until it is either resolved or it is determined that there is nothing more to be done. The purpose of a petition is to bring to the Commission's attention data concerning the safety of a consumer product, and to request that the Commission issue, amend, or revoke a rule on the basis of that data. The Attorneys General's submission did not do that. The type of investigation that might be started in response to a hotline call (an investigation of a single incident) is quite different than requesting the Commission to promulgate a rule.

Mr. SYNAR. Are they getting anything done to their petition?

Just answer the question. Are they getting anything done? The answer is no, is it not, Mr. Peterson?

Mr. PETERSON. We did not docket their petition.

Mr. SYNAR. The point is, they are getting nothing done; is that right, Mr. Peterson?

Mr. PETERSON. No, Mr. Chairman. We are doing everything we would have done had we been able to docket their submission.

Mr. SYNAR. Which is nothing.

Mr. PETERSON. I beg to differ with you. I think the record demonstrates it.

Mr. SYNAR. Mr. Sanders.

Mr. SANDERS. Let me pick up on that record. Mr. Peterson, you have a woman sitting right over there who has suffered terribly. Has your agency ever investigated her concerns?

Mr. PETERSON. Yes. We have an investigation ongoing.

Mr. SYNAR. How ongoing is ongoing?

Mr. PETERSON. When we became aware of her situation, we initiated an investigation.

Mr. SYNAR. When was that that you became aware of her situation?

Mr. PETERSON. When the publicity in her case was generated in whatever the local newspaper is from her community.

Mr. SYNAR. Give us the date, Mr. Peterson.

Mr. PETERSON. That is approximately October 1, thereabouts.

Mr. SYNAR. Of when, last year?

Mr. PETERSON. I would have to check that.

Mr. SYNAR. Just tell us when.

Mr. PETERSON. I don't have that information in my hand.

Mr. SYNAR. Does someone from CPSC with you have that information? The gentlemen behind you is about to give it to you.

When was the first awareness of Ms. Sands' problem?

Mr. PETERSON. According to this, October or early November 1992.

Mr. SYNAR. How much time has expired between the knowledge of that and today, 8 months?

Mr. PETERSON. Approximately.

Mr. SYNAR. Where is that investigation at this point?

Mr. PETERSON. Well, it is ongoing.

Mr. SYNAR. What does that mean? Define "ongoing."

Mr. PETERSON. It means we are still in the processes of getting information.

Mr. SYNAR. Where in the process?

Mr. PETERSON. We are dealing with the State's attorney general and her attorney in trying to get information from them.

Mr. SYNAR. What have you done? How many investigators do you have on it?

Mr. PETERSON. We have one investigator on it.

Mr. SYNAR. What have they done?

Mr. PETERSON. They have attempted to interview Ms. Sands.

Mr. SYNAR. How have they attempted? Have they interviewed Ms. Sands?

Mr. PETERSON. I don't know that for certain.

Mr. SYNAR. Well, ask her. Turn right down the table there and ask her.

Ms. Sands, have you been interviewed by CPSC?

Ms. SANDS. I have not been personally interviewed. I was informed that they contacted my lawyer. In fact, someone in Indiana notified me of this, but I have not been personally contacted by them.

Mr. SYNAR. Eight months has passed, Mr. Peterson, and that attempt has obviously not happened; has it?

Mr. PETERSON. We have not completed the investigation.

Mr. SYNAR. If you have not even interviewed her, there is nothing that has gone on because you cannot do anything until you know what the problem is, can you, Mr. Peterson?

Mr. PETERSON. Mr. Chairman, as I understand it, we have had to deal through her attorney in order to pursue this investigation. That is my understanding of the situation.

We certainly would be pleased to provide you details for the record of precisely what we have done.

[The information can be found in the appendix.]

Mr. SANDERS. I am sorry to interrupt you, Mr. Chairman. I notice the attorney there is shaking his head negatively. They could have contacted her directly.

VOICE FROM THE AUDIENCE. Yes, they could have.

Mr. SANDERS. I am just kind of curious. We have 15 investigations ongoing. Is there anybody in the audience here who themselves has suffered ill effects from carpets? Will those people raise their hand?

Have any of those people been contacted by the CPSC? I see two hands. OK, you have 15 investigations ongoing. What are the results? Have you yet defined—let me rephrase the question. Have you yet to discover an individual in the United States of America who in your judgment was harmed, physically harmed, by carpet?

Mr. PETERSON. Congressman, we believe that over the course, since 1988, the whole 157 individuals whom we are investigating or have investigated have in some way been affected by their carpet. We don't know precisely why or how, and that is why we are in the midst of the study that we are undertaking.

Mr. SANDERS. You have reports that say that a certain number of people, in your judgment, after your investigation, in fact, have been negatively impacted by carpets?

Mr. PETERSON. I would have to look at those reports. I am not aware of what each of the 157—

Mr. SANDERS. You mean to say that you are the Consumer Product Safety Commission of the United States of America, hundreds of people have called you up and you have undertaken an investigation and you cannot tell us today that there is one person, in your judgment, who has been negatively impacted by carpet?

Mr. PETERSON. I can tell you that the findings of our study of those investigations have been significant enough to cause us to continue this effort, to continue to examine the emissions and to attempt to try to identify specifically what the problem is.

Second of all, to pursue—

Mr. SANDERS. How does it happen, sir, that Ms. Sands, a private citizen in Montpelier, VT, and I, a Congressman from the State of Vermont, get bombarded by calls from people telling me they have serious problems with carpets and yet your agency cannot tell this committee today that you have one definitive investigation completed that says that a person has been harmed by carpet.

Mr. PETERSON. The 142, prior to the series of 15 that were begun after the October hearing, have in fact concluded in some way that there is a relationship, that is to say that, clearly, a person became sick or thought that they were suffering some symptom as a result of the carpet installed in their home.

I am generalizing, but that is the conclusion that probably the majority of those investigations have reached. The problem is specifically what was it in the carpet that is causing the problem.

[The information follows:]

With regard to the conclusions from In-Depth Investigations:

Presently, of the recent 15 In-Depth Investigations started since October 1992, 12 are completed, and the other three are still being investigated. The conclusions of these investigations, in general, are that people have complained of symptoms, such as those often associated with colds and the flu, after installation of carpet. In some cases, physicians say that carpet may have caused the problem, and the others, they say the cause is unknown. However, in no case has a physician identified what it is in carpet that caused a problem. The Commission is now investigating what chemicals are emitted from carpets and carpet cushioning, and what health effects might be attributable to these chemicals at the levels consumers would likely encounter.

Mr. SYNAR. All right, so you have a conclusion. What can you do?

Mr. PETERSON. We use that data, then, to continue the process, to try to draw links between what is being emitted from the carpet and what the effect is on human beings.

Mr. SYNAR. So you draw that link. Let's say you come to that conclusion, then what do you do?

Mr. PETERSON. The next step will be, based on the volume of that linkage, that is to say, if we can draw clearly a tight linkage, then there are any number of things we can do. One of them could be to proceed into a rulemaking to regulate that chemical content in the carpet.

Mr. SYNAR. We are at the point where we are trying to draw a link. Can you tell this committee when that conclusion, one way or another, yes or no, will be made?

Mr. PETERSON. I can not tell you that.

Mr. SYNAR. What is your guess?

Mr. PETERSON. Our investigation and the method by which we are pursuing this whole process will, I am hopeful, bring us to that conclusion or near that conclusion in late 1994 or 1995.

Mr. SYNAR. A year and a half to 2 years from now?

Mr. PETERSON. Mr. Chairman, science is a very arduous process and rulemaking a very arduous process. You have to be able to demonstrate and replicate what you are doing. It is not a political process. You have to be able to demonstrate it in order to take some remedial action.

Mr. SYNAR. So the earliest that the Consumer Product Safety Commission can tell the American public that there may or may not be a rule is 2 years from now?

Mr. PETERSON. If we have to go the rulemaking route.

Mr. SYNAR. What can you do if you don't go the rulemaking route?

Mr. PETERSON. Well, we are doing a lot of things. We are informing consumers about taking proper steps in the installation of carpet.

Mr. SYNAR. How are you doing that?

Mr. PETERSON. We do it through our hotline. We do it through publication and distribution of various pamphlets and fact sheets.

Mr. SYNAR. Let me see if I have this straight. There are 80 million people who have put carpet in their home, and if those 80 million figure out if they need information, they would call you. But as we can see, even with some attention, only about 6,000 out of 80 million are doing that.

Do you consider that disclosure in providing information to the mass public?

Mr. PETERSON. Mr. Chairman, we use the mass media to get that message out. I don't know how much more exposed you can get.

Mr. SYNAR. How about public service announcements?

Mr. PETERSON. We do it through press release.

Mr. SYNAR. How many press releases has CPSC sent out informing the American public about the potential dangers of carpet?

Mr. PETERSON. Since 1988, I would envision that we have probably sent out at least two a year.

Mr. SYNAR. Would you provide those for the committee?

Mr. PETERSON. I will be happy to.

[The information follows:]

List of all releases of information by CPSC to the public regarding carpet:

- \* In CPSC staff's testimony on June 11, 1993, it was roughly estimated that two public releases of information were issued per year by the CPSC. Going back through the Commission's records, the number of releases of information to the public was in fact less than this figure. A description of releases of information to the public follows:

Description	When Released
Letters to allergists, and a press release, asking for information from anyone who attributed adverse health effects to carpet installation	July 1989
Results of the study on carpet-related complaints	August 1990
Results of the carpet chemical release study done for CPSC by Lawrence Berkeley Laboratories	August 1992
Fact sheet on carpets	October 1992
Status report on carpets	March 1993

Mr. SYNAR. What triggers the sending out of that?

Mr. PETERSON. Largely it is the result of a cycle that we go through in address of various hazards and issues the agency deals with on a year-to-year basis.

[The information follows:]

With regard to what triggers the release of information to the public:

Such a release might be triggered by a new event, like the completion of a phase of study; a need for information; or a finding that warrants public notification.

Mr. SYNAR. To send out the notice of the potential danger, don't you have to make a determination that there is a danger?

Mr. PETERSON. Not to issue a press release. A press release is not a formal rulemaking, Mr. Chairman.

Mr. SYNAR. Well, I finally found something you all can do down there.

Mr. PETERSON. Mr. Chairman, that is not fair.

Mr. SYNAR. Mr. Sanders.

Mr. SANDERS. Mr. Peterson, I would like to ask you the same question I asked Mr. Kimm from EPA. My office, with one staff member, has been in contact with at least five physicians around the country who believe that the illnesses of their patients are associated with carpets.

I wonder if you can tell us what physicians your office has been in contact with who are working on this problem and who in fact believe there is a correlation between the illness and exposure to carpets.

Mr. PETERSON. I cannot tell you specifically how many—what physicians the agency has been in contact with, but I can tell you that in 1990, when we did our study of those complaints, more than two-thirds of the residents with symptoms, that was 228 at that point, had seen a medical doctor.

Only 44 or about 13 percent of the respondents said that the doctor related their symptoms to carpet installation, and the basis for these impressions was not reported.

Mr. SANDERS. In that 13 percent, did you proceed to then talk to those physicians to try to get their understanding?

Mr. PETERSON. I don't believe we did. I don't know that for certain.

Mr. SANDERS. Would it be fair to say that your agency has not yet. I have mentioned today, I read excerpts from letters which we will be happy to share with you, from at least five physicians. Have you, for example, advertised in the journals and said the CPSC is interested in hearing from physicians around the country who may have experience in the relationship between the illness of their patients and exposure to carpets?

Mr. PETERSON. Well, when we initiated this process back in 1988, we did communicate with allergists all over the country. That was the first effort from which then a whole series of complaints came to the attention of the agency.

Mr. SANDERS. Did allergists tell you that they had patients who were suffering as a result of exposure to carpets? Did any of them tell you that?

Mr. PETERSON. I can't tell you whether the allergists told us that or whether the individual consumers told us.

Mr. SANDERS. Here is the point I am trying to get at. It seems to me, if I was sitting at your desk, I would be very vigorous in trying to learn as much as I could about the problem. With one staff member, we have now located at least five physicians. I expect there are a whole lot more around the country who believe there is a link between exposure to carpet and the illness of their patients.

How could it be that your agency has not spoken to these physicians to get their opinion?

Mr. PETERSON. The simple answer to that is that we have not gotten that far in the process. There is a process by which we are following to address the hazard itself. As I said in my testimony, sir, incidents do not—they are interesting and they help us, but they are not in and of themselves helpful in terms of being able to prescribe the specific remedy.

Mr. SANDERS. I have read a letter from a physician who claims to have worked with many people who have been made ill by carpets. You don't think it would be relevant and part of your learning curve to talk to that physician? You don't think that that physician or those physicians have anything to offer you?

Mr. PETERSON. It would be interesting. There is no doubt that they would be interesting. But the physician cannot tell us specifically what it was in that carpet that made the person sick.

Mr. SANDERS. But don't you think that given the facts that we heard today and what the American people are hearing and the point the chairman made is that, after all the years of discussion of this issue, we know almost nothing. That is what I am hearing from the EPA and that is what I am hearing from you.

It seems to me, if there were physicians who are studying the problem, who are investigating the problem, I, if I were the Consumer Product Safety Commission, would be on the phone trying to learn as much as I could. I would be bringing them into Washington to hear what they have to say.

Do you think I am wrong?

Mr. PETERSON. With all due respect, sir, yes.

Mr. SANDERS. Why do you think I am wrong?

Mr. PETERSON. Because it is not a very efficient use of resources. [The information follows:]

With regard to the suggestion that CPSC spend resources bringing physicians to Washington to hear what they have to say:

The physicians are not studying the problem. They are treating their patients' symptoms. The physicians do not know, from a specific chemical standpoint, what causes one person to have burning eyes or a sore throat and another one not, other than that person is allergic or sensitive to something in their environment. That is why CPSC must do the emissions testing it has underway. Then science will know, or hopes to find out, what causes these allergic reactions.

Mr. SANDERS. And your approach is an efficient use of resources. I hesitate to ask how much money you are spending on your approach which has gotten us nowhere.

Mr. Chairman, as I listen to the EPA and CPSC today, we know why millions of Americans are turning off to the political system and their own government. It is a very sad sight to observe.

Mr. SYNAR. Mr. Mica.

Mr. MICA. Thank you.

Mr. Peterson, other than the members who are here today, your agency, how many congressional inquiries have you had on the problem relating to carpeting?

Mr. PETERSON. During the time I have been with the agency, which is now almost 3 years, we have had one other hearing on carpet.

Mr. MICA. Are you telling me that out of 535 Members of Congress, you have only had one other inquiry in your agency about this problem?

Mr. PETERSON. It was a hearing that Senator Lieberman convened on behalf of Congressman Sanders in October.

Mr. MICA. So it was motivated by someone on this panel, OK.

You said you had 6,500 calls over what period?

Mr. PETERSON. 6,150 calls since the October hearing.

Mr. MICA. You will probably get a lot more after this hearing.

Mr. PETERSON. Probably so.

Mr. MICA. How does that relate to other kinds of products? Do you get calls on other products that need your attention? I know you have had limited resources.

Mr. PETERSON. The agency's hotline maintains at any given time probably 100 pieces, 100 messages on different products and different hazards.

Mr. MICA. Do you have something on carpeting?

Mr. PETERSON. Yes.

Mr. MICA. Where does this rank in, say, the 3 years you have been there, for example, is this the No. 1 product, consumer product safety problem?

Mr. PETERSON. No, sir. We have committed our resources on the basis of what we call a risk base priority.

Mr. MICA. What are the top products?

Mr. PETERSON. The top priorities are children's products, toys, fabrics, that sort of thing, household fire and electrical problems and power tools.

Mr. MICA. What about calls? Are the calls coming in. I mean, isn't carpeting right up there at the top?

Mr. PETERSON. No.

Mr. MICA. If you had a range from the top to the bottom, is the carpeting, in the 3 years you have been there, where would we put carpeting?

Mr. PETERSON. I would guess you would put it in the last 10 percent.

Mr. MICA. So you are trying to take care of the other 90 percent of the problems and the deluge of interest you have had from the other Members of Congress in the 3 years, you are trying to control that attention on this devastation that is wrecking havoc on our society.

I have not been here that long. I was in business and came here. I am not sure, does your agency do testing and things of that sort, product testing? Or do you rely on, say, the information from other agencies?

Mr. PETERSON. We don't do premarket testing of products. We do testing in areas where we identify a potential hazard and try to identify what that hazard is.

Mr. MICA. So you rely on other agencies, too. Do you have information from what EPA has done?

Mr. PETERSON. In the case of carpets, we have been working with EPA since 1988. We set forth a regime, a test protocol. We started out testing first, the carpets. Then we were testing the cushion and then the carpet and cushion together as a system to try to identify which chemicals are being emitted. Then, finally, we will evaluate the emission levels to determine if and why they are toxic.

So far, we have identified some 200 chemicals that come off carpets. We have analyzed the 40 top chemicals and we have not been able to discern that any of those, at the rates at which they are coming off the carpet, are toxic.

Mr. MICA. The products you talked about, the 90 percent range and then you told the chairman, I think, that some of the attention you were focusing you had sent out releases. I guess there have been some publications. EPA does a publication.

Is the attention you are focusing an amount of the public warning about this sort of a common sense warning, is this about the same that you are doing for the top 90 percent that were problems, or how does—I want to know if you are paying, you know, the serious attention this incredible travesty on the consumer requires in relation to the other product dangers?

Mr. PETERSON. I think that, by comparison, it is an inordinate amount of resources that we are devoting to this problem.

Mr. MICA. Thank you, sir.

Mr. SYNAR. Thank you, Mr. Mica.

Ms. Sands, I want to thank you. I am told you came here at your own expense. I appreciate your coming again. I think it is very important that we continue to mark our progress.

Ms. SANDS. If I can say one thing. I hope some day I can come back and say government does work and they have done something about their problem.

Mr. SYNAR. Ms. Sands, it is our intention to make sure you can say that as quickly as possible. Ms. Suchman, let me give you some advice for Mr. Abrams, call the hotline.

Ms. SUCHMAN. Thank you.

Mr. SYNAR. Thank you all for being with us today.

Mr. SYNAR. Our final panel will be Mr. Ronald VanGelderan, president of the Carpet and Rug Institute, Dalton, GA; accompanied by Dr. Joseph F. Borzelleca, professor of pharmacology and toxicology, Medical College of Virginia, Virginia Commonwealth University; and Dr. William Stott, toxicologist, Dow Laboratories.

[Witnesses sworn.]

Mr. SYNAR. Let me thank you for your patience. Obviously we did not anticipate this hearing going this long, but there is a great amount of interest by members on this subject.

Mr. VanGelderan, we will include your statement for the record. At this time, we will ask you to summarize and explore some of the issues that have come up today.

**STATEMENT OF RONALD VanGELDEREN, PRESIDENT, CARPET AND RUG INSTITUTE, DALTON, GA, ACCCOMPANIED BY JOSEPH F. BORZELLECA, Ph.D., PROFESSOR OF PHARMACOLOGY AND TOXICOLOGY, MEDICAL COLLEGE OF VIRGINIA, VIRGINIA COMMONWEALTH UNIVERSITY; AND WILLIAM STOTT, Ph.D., TOXICOLOGIST, DOW LABORATORIES**

Mr. VANGELDEREN. Thank you, Mr. Chairman. Thank you for your patience on this very important subject. My name is Ron VanGelderan. I am president of the Carpet and Rug Institute which is comprised of companies that produce 95 percent of all carpet made in America.

With me today are two scientists who bring the necessary scientific expertise to this hearing. To my left is Dr. Borzelleca, professor of pharmacology and toxicology at the Medical College of Virginia, and Dr. William Stott, toxicologist at Dow Laboratories.

I hope we can agree on three concepts, that everyone has the responsibility to communicate facts openly and honestly with the consuming public and avoid speculation and avoid conjecture, that our conclusions must be based on science and that all of us—industry, government, the science communities and others—must develop a consensus on both our scientific and public education approaches.

We want to make it crystal clear that we are as concerned as you are that people like Ms. Sands are suffering and we want to work with you, the EPA, the scientific community and others to fully understand those kinds of problems and help find a way to prevent them. This makes it imperative that we concentrate on research that can be helpful and focused on finding solutions.

Unfortunately, we have had all our efforts diverted on work provided by Anderson Laboratories which has done nothing but help confuse the issue. It has been alarming and it has turned out to be seriously flawed. Because we are committed to a sound, scientific investigation, we formed a scientific advisory board of five respected university scientists.

I have here their credentials. As you can see, they are heavy on expertise. Dr. Borzelleca, by the way, is one of the five. One of their main activities has been to review data from recent tests conducted by other highly credentialed scientists. I might add that I have their credentials as well. There are more than 20 of them in here, who have been involved in understanding the Anderson test methodology.

[Charts A, B, and C can be found in the appendix.]

Mr. VANGELDEREN. Now we have a chart—see exhibit A—that lists just some of the many serious flaws with the Anderson tests, and in the interest of time, we put them over here on the easel. As a result of this investigation, the Science Advisory Board issued the following statement on the Anderson tests "We believe that Dr. Anderson's protocols are seriously flawed such that their findings are irrelevant for reaching any conclusions on the subject of carpet and human health."

As one of the scientists put it, the Anderson tests are tantamount to lacing up a human being in a straightjacket and repeatedly choking him for 2 days and turning up the heat.

Because this method is flawed, laboratories have found this test affects mice from practically anything put in its chamber, such as

red oak flooring, ceiling tile, paint, particle board, plywood, oak veneer, mattresses, telephone ear pieces, extension cords and even cheddar cheese. In fact, one laboratory attempting to duplicate the Anderson methods actually killed mice with nothing but water vapor entering the chamber.

Mr. Chairman, as far as we are concerned, it is time all of us stopped looking at the Anderson methodology and instead turned our attention to developing a consensus on scientific research strategy which will help us understand the effects of indoor air quality and the kinds of scientific approaches that will actually help us protect the consuming public like Ms. Sands and others.

I plead with you, on behalf of the industry and the consumer, let us end this preoccupation with the Anderson test and focus instead on meaningful research and education and on solutions.

In that regard, Mr. Chairman, may I direct your attention for just a moment to another chart—see exhibit B—just to demonstrate how small carpets' contribution is to the total chemicals emitted into the air compared with any other product. Carpet is the one way over there on the left-hand column.

Let me be clear. Even though scientific evidence overwhelmingly demonstrates that carpet itself does not adversely affect public health, we are committed to continue scientific efforts. We have asked EPA administrator Carol Browner for an immediate meeting. We intend to invite EPA, CPSC, private institutions and other government agencies to join in an indoor air quality research strategy. In the spirit of reaching a consensus, we also welcome suggestions on the all-important job of educating the consumer.

Our testing and labeling program developed voluntarily with the input from many public and private sources, has been criticized as misleading by some. Believe me, we have always intended it to be only a program to educate the consumer on low emitting carpet and motivating carpet manufacturers to produce low emission products, not all these other things we keep on hearing.

But in that spirit, today we ask you and the government agencies to help us develop an additional voluntary consumer information label for those who consider themselves unusually sensitive. The time has come. This label would be attached to every roll of carpet manufactured by our industry which could also be prominently displayed in retail outlets as well as on carpet samples.

With so much misleading information promulgated by others, we think this is essential. Our customers deserve to receive helpful information and the facts. In the meantime, we are expanding and developing other consumer assistance programs. The other chart—see exhibit C—that we have over here on industry efforts indicates just a few that we are involved with. Again, in the interest of time, I will continue.

As we pursue sound science, let's allow common sense to prevail. My children, my family, have grown up with carpet as I suspect have many of you and your children. Would we have allowed that if there had been any indication that carpet might have adversely affected their health? Not a chance. The positive experience of hundreds of millions of others reinforces our belief.

Let's not be scared or stampeded into illogical conclusions. Instead, let us keep our heads about us. We all need to work to-

gether, not to bash, but to find a solution. We stand ready to be part of that effort.

Thank you, Mr. Chairman.

[The prepared statement of Mr. VanGelderen follows:]



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TESTIMONY OF  
RONALD E. VANGELDEREN, PRESIDENT  
THE CARPET AND RUG INSTITUTE

BEFORE THE  
HOUSE GOVERNMENT OPERATIONS COMMITTEE  
SUBCOMMITTEE ON ENVIRONMENT, ENERGY AND NATURAL RESOURCES

UNITED STATES HOUSE OF REPRESENTATIVES  
JUNE 11, 1993

Good morning Mr. Chairman and members of the Subcommittee. Thank you for the opportunity to address you on behalf of the American carpet industry on the issue of carpet and indoor air quality. My name is Ron VanGelderan. I am President of the Carpet and Rug Institute, which is comprised of carpet manufacturers producing 95 percent of all carpet made in America. With me today are two scientists who bring substantial scientific knowledge and history to this hearing. Dr. Joseph F. Borzelleca, who is Professor of Pharmacology and Toxicology at the Medical College of Virginia (Virginia Commonwealth Univ.), and Dr. William Stott, a toxicologist with Dow laboratories. Their credentials have been attached to my written testimony, and with your permission, they will assist me in responding to any specific scientific questions you may have.

The carpet industry is one economic sector where the United States continues to lead the world. American manufacturers produce approximately 1.2 billion square yards of carpet annually -- over 40 percent of the world market. We employ over 1 million Americans across the country, engaged in the manufacturing of carpet, face fiber, latex, dyestuffs, backing, finishing products, floor adhesives, sealants, and carpet cushion; as well as its distribution, retailing, installation and cleaning. The carpet industry is also a significant positive contributor to the U.S. balance of trade, exporting over \$745 million in product every year.

Making and using rugs is an ancient human art and practice, which evolved into carpet making over 100 years ago. It is the American

carpet industry's dedication to quality and concern for customers that account for its being such a successful part of the U.S. economy, and for the fact that over 70 percent of all floor space in the United States, including 120 million households, use carpet and/or rugs. So please, let us all keep that in mind before any further weight is given to unfounded conclusions regarding carpet. After all, we cannot forget that the overwhelming preponderance of scientific evidence, gathered from extensive Environmental Protection Agency, Consumer Product Safety Commission, and industry tests, continues to suggest that, while there is a possibility that a small number of individuals may be particularly sensitive to a variety of household products, which may include carpet, carpet itself does not adversely affect public health.

The carpet industry will continue to take a leadership position in committing its resources to finding solutions to any problems with respect to indoor air, or any other area of consumer concern. We welcome the federal government's role in assuring that consumers and workers enjoy a safe and healthy environment, and we look forward to moving ahead together to tackle the issues.

CRI takes seriously the allegations regarding the safety of our carpet. We are very concerned about the unfounded alarm the public has been subjected to by these allegations -- allegations premised upon non-scientific studies. So, with so much confusion about the science surrounding this suddenly explosive public issue regarding carpet emissions, we had to ask ourselves, how does a responsible industry respond?

With any luck, my testimony will give you at least a flavor for all the positive things the carpet industry has done, and continues to do, to:

- 1) promote sound science in order to find where any real problems may be so that they can be addressed;
- 2) fully inform the public; and
- 3) be a responsive, responsible and cooperative corporate citizen.

My preference would be to talk only of these positive activities as they relate to indoor air. Unfortunately, a great deal of CRI's attention has been diverted over the past year to dealing with allegations stemming from Anderson Laboratories. Therefore, when the day is done I hope you will also remember a fourth point, which is that the Anderson Laboratories test, while of significant shock value, is not helpful to finding answers to, and is a major diversion of attention away from, the real issues of indoor air quality. Let me take up my fourth point first.

WHY THE PUBLIC SHOULD BE SKEPTICAL OF THE ANDERSON TESTThe Anderson Test is Not Scientific

Let me make one very important point with regard to the science we will rely upon to make progress on improving indoor air quality. An approach must either be scientific or else it is non-science and of no use. That is why CRI, the Environmental Protection Agency, the Consumer Product Safety Commission, the Styrene-Butadiene Latex Council, Dow laboratories, Monsanto laboratories, DuPont laboratories, and Air Quality Sciences, Inc. have rigorously pursued scientific means to understand the results that Anderson Laboratories -- and only Anderson -- is getting.

The Anderson Test is a Moving Target

Last year the Environmental Protection Agency and the Consumer Product Safety Commission were called upon to reevaluate the health and safety of carpet in light of disturbing reports that Anderson Laboratories had devised a test that killed mice with carpet. In the last eight months the EPA endeavored to replicate the Anderson test. This was a very difficult task for EPA because the Anderson test method is such a moving target. Every scientist knows that for a test to become generally accepted and recognized as valid it must first be capable of being repeated using identical methods that yield the same results. Since Anderson Laboratories first announced to the media that carpet is a potential health risk because its tests revealed that carpet can be deadly toxic to laboratory mice, there seems to be no end to the changes in the Anderson test methodology. In fact, prior to EPA developing a written protocol for the Anderson test, the Anderson methodology had never even been formalized in a written document.

The following represent some of the evolutions in the Anderson Laboratories carpet testing methodology:

## Initial testing via ASTM E981

- single exposure (ca. 30 min)
- conventional sample loading
- samples in 10 gal. aquarium

-- then --

## ASTM E981

- with higher carpet sample loadings and heat

-- then --

## Modified ASTM E981

- four exposures (over ca. 24 hours)
- high sample loading

- heated samples
- recirculated air within system

-- then --

Same Modified ASTM E981  
- with no recirculation

-- then --

Same Modified ASTM E981  
- with no heat

-- then --

Dr. Anderson revealed at the May 26, 1993 EPA peer review meeting that she is evaluating several additional changes involving

- trapping emissions in water traps
- injecting ingredients into animal chamber as an aerosol

-- in addition --

A "screening" test was developed

- line ca. 1 gal. jar with heated carpet
- restrain mice vertically in "pill" bottle
- one hour multiple exposure

The most remarkable thing about all of these changing methodologies is the fact that Anderson Laboratories reports identical effects on mice no matter how significantly the test is altered. The practical effect of this is that Anderson Laboratories is reporting the same results no matter what the test, while other scientists cannot replicate, much less validate, the results because the methodology is in flux.

#### The Anderson Test is Not Relevant

The Anderson method does not offer any helpful information about carpet's role in indoor air quality, or any helpful data on how carpet may be improved. To the contrary, the Anderson method is fatally flawed as a scientific testing method and therefore, of little use for a serious effort towards improving the quality of indoor air we breathe. We are very concerned about the unfounded alarm this scientifically invalid study has caused to the public.

The public has been unduly panicked and misinformed by the Anderson "findings". The following CRI review of the Anderson method details the unscientific characteristics of the test that yield its uninformative results:

Claiming to follow an approved, peer reviewed test called ASTM-E981

Anderson Labs deviates significantly from ASTM-E981. These deviations have not been peer reviewed by the scientific community and may, in part, be responsible for the harm to mice the Lab observes.

The lack of concurrent control animals when running each test.

The use of appropriate controls is a common, expected part of research and testing programs. It is done to determine the effect of a test without any material being tested and to eliminate any bias on the part of laboratory officials who must subjectively observe the animals for effects after the test is conducted. This ensures the results obtained by conducting the test with the material at question are solely caused by such material and not by the apparatus, procedure, handling, or potential bias of observers who know which animals have been exposed to the test material.

The lack of training to conduct neurological evaluations of test animals.

ASTM-E981, as originally designed, is intended to help determine if chemicals are irritants, that is, do they irritate the test animal. Anderson Labs uses its modified ASTM-E981 to make neurological observations of test animals. Under this procedure, Laboratory staff observe test animals doing a variety of activities immediately after the test is conducted. To my knowledge, the laboratory does not have staff trained to make neurological observations and considers certain mice behaviors that are normal or have very plausible alternative explanations (such as harm caused by the testing apparatus) to be adverse neurological effects caused by the carpet. Also note that since no control animals are included in the observation, the Laboratory staff are fully aware of the fact that the mice being observed were subjected to the testing material. This clearly can and does lead to biased observations. I cannot under estimate the importance of this point.

Rough handling and a testing apparatus that injure or kill the mice.

While Anderson Labs has never stated it has had mice die from the handling associated with installing them in its testing equipment, it has reported ear bleeding which can only be caused by trauma to the animal as a result of the testing procedure and apparatus. When installed, the mice are held in place with a neck collar restricting movement. The collar also restricts their breathing and blood vessels in the neck. This results in reduced oxygen uptake and increased blood pressure in the head and brain of restrained mice, sometimes causing brain hemorrhages. The mice are provided no water during the hours the test is being run. Dehydration and their susceptibility to stress could entirely or

in part explain the health problems shown by the mice.

Running most of the test at relatively high temperatures.

Carpet samples are "cooked" in a sealed chamber at high temperatures for one to two hours. Mice are then exposed to the air in the chamber. In tests run by Dr. Alarie at the University of Pittsburgh where he followed Anderson Lab's procedures, the bottom heating pad surrounding the chamber in which the carpet samples are placed reached 179°F. The carpet sample which is placed directly on the glass bottom of the chamber reached temperatures as high as 140°F. The air at the top of the chamber reached 98°F, and the temperature of the air reaching the mice was 80°F. These are not ambient room temperatures where carpet is ever found. The carpet samples are clearly subjected to conditions under which they would never be found during normal installation or use.

Using a fish tank as a testing chamber to hold the carpet samples.

The chamber used to hold the "cooked" carpet samples is a common fish tank available at any 5 and 10 store. You and I can buy one down at any WalMart. It contains materials such as rubber caulking that may introduce contaminants into the air and affect the experiment, particularly at the high temperatures used.

Using ambient room air when running the test.

The test is run using ambient room air exposing mice already under stress from confinement to any contaminant in the laboratory's air. A valid test designed to demonstrate the effects of the material being tested would use air filtered to eliminate external contaminants able to alter the test results. Anderson Laboratory is located immediately adjacent to an automotive paint shop. It has indicated that fumes from the spray painting operation routinely enter the laboratory, interrupting its test activities.

It is important when reviewing the Anderson test method, or any other new method associating effects from a substance, that basic principles of toxicological evaluation be applied. The method should be capable of demonstrating cause and effect relationships, measuring a specific response to the test agent. For the method to be useful as a predictive tool, it should be sufficiently precise to eliminate intervening variables introduced by the test protocol or the personnel conducting the test. The test equipment itself should not produce a response that either masks or replicates the response being measured and associated with the test agent. Results from the test method should be reproducible, both within the same laboratory and by other outside qualified laboratories. To help ensure the quality and integrity of the test data, the testing laboratory should adhere to principles of good laboratory practices using qualified personnel, as established by

the Organization for Economic Cooperation and Development and applied in the U.S. by the Environmental Protection Agency and the Food and Drug Administration. As best we understand, the Anderson test method, Mr. Chairman, the proper scientific procedures outline above, have not been employed.

#### Major Diversion of Public and Private Resources

I must make clear that CRI does not ignore or take lightly the Anderson test results. We are, however, exasperated and dismayed by the huge amount of resources and attention that have been committed to a "study" that meets none of the criteria for sound science. The EPA developed the Good Laboratory Practices (GLP) guidelines precisely to make sure that industry studies were held to high standards. When so much high standard science conducted by CRI, the Environmental Protection Agency, the Consumer Product Safety Commission, the Styrene-Butadiene Latex Council, Dow laboratories, Monsanto laboratories, DuPont laboratories, and Air Quality Sciences, Inc. indicates that carpet is unlikely to pose a health hazard, why is it that we are expending so many resources on a "study" that does not meet any of the high GLP standards EPA developed?

A yet more important question is why have we not utilized our limited resources to develop a valid scientific methodology that will find the answers for which we are all striving? Whether there is or is not such an answer, CRI will continue its commitment to conduct sound science that leads to real understanding and real solutions. Now let me tell you about some of the scientifically valid activities CRI is undertaking.

#### INTENSIFYING APPLICATION OF SCIENCE TO UNDERSTAND AND IMPROVE IAO

##### Establishment of the CRI Scientific Advisory Board

The carpet industry's absolute dedication to assuring that carpet does not pose a hazard to human health or environment has meant a rigorous commitment to utilize sound science as the arbiter of our actions and in the discharge of our responsibilities to the public. We believe that improvement of indoor air quality is important, and we are committed to being part of the solution.

Because we take this issue so seriously, we insist on using quality science in order to find the solutions. For this reason, the carpet industry established the Scientific Advisory Board, comprised of leading scientists and medical specialists that provide us with the best possible scientific counsel. A list of the Scientific Advisory Board members, and their credentials, are attached to my statement so that you may see why we are justifiably proud of this group. This issue is just too important and the stakes too high -- in terms of human health, quality of life, and

the effects on American workers -- to base our response to purported potential health risks from carpet on anything less than scientific evidence.

#### Industry's Concerted Effort to Understand the Anderson Test

The carpet industry has directed several large and highly regarded industrial toxicology laboratories and have attempted to replicate the purported findings of carpet-related effects in mice by Anderson Laboratories. Toxicologists at the Monsanto Environmental Health Laboratory (St., Louis, MO), DuPont Haskell Laboratory (Newark, DE) and Dow Chemical Toxicology Research Laboratory (Midland, MI) have tested a number of complaint carpets which were reported to have caused moderate to severe toxicity in mice by Anderson. In contrast to Anderson Laboratories, these laboratories operate under EPA's Good Laboratory Practice developed to insure the integrity and scientific credibility of toxicology research. In addition, an independent laboratory, Air Quality Sciences, Inc. of Atlanta, GA, has also tested complaint carpets in mice. None of the tests have revealed the types of changes reported by Anderson for the same carpets. Results of these studies will be peer reviewed and published for the public in the near future.

#### Scientifically Accurate Environmental Chamber Tests

CRI has engaged an independent and highly credible testing laboratory, Air Quality Sciences, Inc., to conduct carefully controlled and scientifically accurate environmental chamber tests, intended to replicate real indoor environment conditions. This method measures emissions to the one-billionth part. The emissions rates of chemicals in carpet were identified and evaluated for changes over time.

#### Studies on Carpet Odor Compound

CRI began its investigations of carpet odor in 1988. 4-phenylcyclohexene (4-PC), a compound that is an incidental by-product of the styrene-butadiene latex used to bind carpet fibers to the backing, was identified as the compound responsible for carpet's distinct smell. Tests of 4-PC have proven it to be "non-remarkable". In fact, EPA stated after reviewing several 4-PC studies that "EPA's evaluation of 4-PC shows no evidence of...toxicity and, indeed shows that it is an unremarkable chemical....[N]o credible physiological or biochemical causal mechanism has been identified to link 4-PC to...[adverse health effects]" (from 55 Federal Register 17404, 17406 (3/24/90)).

EPA has also stated that it "simply does not have a sound scientific basis for concluding that 4-PC or other carpet constituents can be causally associated with reported health problems." Since identifying it as the causal agent, we have reduced 4-PC emissions by 70 percent. Anderson Laboratories, however, has

reported that it has found 4-PC produced effects on laboratory mice that were similar to those found in the Anderson tests of "complaint carpets". Because Anderson came up with these surprising results, the Styrene Butadiene Latex Manufacturers Council (SBLMC) sponsored a rigorous inhalation study of 4-PC, conducted under conditions much more severe than those used by Anderson Laboratories. The methods are as follows:

Where the Anderson Study experimented with four mice, the SBLMC study used 40 mice.

While the Anderson study used only one concentration of 4-PC at only 0.4 ppm, the SBLMC study tested several different concentration levels of 4-PC at 0.0, 7.0, 18.0 and 71.0 ppm (saturated atmosphere).

Where SBLMC study exposed the mice for six hours a day for nine days, the Anderson study only exposed the mice for one hour -- twice daily -- for two days.

Where the dosage used by the Anderson study during the exposure period was only 6 mg/kg, the SBLMC study used intense doses of 1400 mg/kg.

The remarkable thing about the two studies observations were, that although the methods were far more severe in the SBLMC study, there were no ill effects observed on mice in the SBLMC Study. While Anderson study got positive observation of respiratory irritation, the more stringent SBLMC Study did not. The Anderson study observed behavior and severe motor activity changes, and again the more rigid SBLMC study did not. While the Anderson study noted lung changes in mice, the SBLMC study noted none. Finally, the Anderson study resulted in death of its mice; the SBLMC Study observed no deaths.

#### Only Through Scientific Methodology Can We Aim at the Right Target

We feel that it is not only important, but imperative, to discover why some unusually sensitive individuals appear to have a reaction to certain indoor air quality factors. "Studies" with shock value, such as the Anderson test, that seem to correlate with anecdotes about people that have had reactions with carpet, can be particularly misleading. Only science can give us the perspective, for instance, that many millions of Americans react allergically to all kinds of natural things, like shellfish, dairy products, pollens, molds, and dust. Non-scientific studies do not inform us of whether an individual was reacting to shellfish or to cocktail sauce, to polyester pillowcases or feather pillows, or whether an individual was allergic to dogs or just the dust and pollen pets can track into a room.

We are aiming to improve carpet cleaning and maintenance. We have

even investigated vacuum filter bag technology to determine the best way for consumers to remove these irritants from their indoor environment. Still newer yet controversial research suggests that there may even be a very small segment of the population with what has been called "multiple chemical sensitivity," or MCS. These are just a couple of examples of how the perspective of science permits us to aim at the right target. CRI insists on utilizing sound science as the arbiter of its actions in the health and safety arena. We know that such efforts keep us focussed on activities that truly meet the needs of our consumers.

#### Model Consumer Response Programs

CRI is working with member companies to develop model programs, which will include the deployment of response teams to investigate consumer complaints. This will give us the ability to take our scientific investigations beyond the important lab work we have been doing, and out into the field where the cause and effects of all indoor air environmental factors can be more closely observed. These teams will increase our scientific understanding of the kind of indoor air quality conditions that may cause problems in certain individuals.

#### Building Consensus in the Pursuit of Science-based Public Policy

CRI is approaching research organizations, both public and private, as well as universities, that do not have a commercial interest in carpet, to examine the broad impact of non-scientific studies on public policy decisions. Carpet would make a good case study. We would like to involve the National Academy of Sciences, but since the NAS cannot conduct studies for non-governmental organizations we hope that the EPA will make a similar request of NAS. We hope the Academy can point a way to a future where the government and private sector do not commit so many resources to the pursuit of non-science, but to focus instead on real problems.

We have indicated to Administrator Carol Browner that we would like an opportunity to meet with her at her earliest convenience. We intend to discuss our desire to develop a partnership of public and private institutions, the government and industry who would be willing to join us in a consensus effort to develop an indoor air quality research strategy.

#### EDUCATING THE PUBLIC ABOUT CARPET AND IAO

The carpet industry is committed to keeping the consumer well informed, both because an educated consumer is our best customer and because faulty public perception is quick to form in the absence of facts.

#### Two-way Communication with Consumers

The CRI serves as the voice by which the carpet industry communicates with the public. We have provided customers with a toll-free hotline (800-882-8846) for help with indoor air quality questions and concerns. This allows us to communicate directly with a concerned customer.

#### Voluntary Industry Testing and Labelling Program

At the conclusion of the 14-month Carpet Policy Dialogue with EPA, CPSC, consumer advocate groups, and others, the CRI voluntarily initiated a testing and labeling program in January, 1992. This program was envisioned from the beginning to be a pollution prevention, emissions reduction, and exposure reduction program. The program sets a ceiling on the amount of volatile organic compounds emitted from carpets that bear the tag. This program is also a vehicle to communicate new information about carpet as it becomes available. We view our testing and labeling program as a dynamic approach to continue to ratchet down the already extremely low carpet emissions levels, and as a means of educating the public about carpet's contribution to IAQ as new information comes to light.

Some say that our testing and labeling program is misleading. Much to our surprise, we have heard some critics attack it as a public relations effort to assuage consumer concerns. Never was it intended to be, nor promoted as, a kind of "health guarantee" program, as they charge. I invite those critics to take another look. The tag is a means to inform the public that this carpet has met the emissions reduction program criteria. Furthermore, this program provides a means of communicating with the public about our continuing efforts to reduce emissions. As a dynamic program, the industry's testing and labelling initiative will continue to grow as science reveals new information that is helpful to our understanding of indoor air quality.

We were more than happy to agree when EPA recently requested we work with them to improve our public education programs, including consumer understanding of our testing and labelling program. One of our first efforts will be to assist EPA and CPSC in obtaining consumer input. We will be looking at new ways to better communicate with the public so as to assure that information is correctly conveyed.

#### Additional Consumer Information Label

As evidence that our program is continuing to evolve to better serve our customers, the CRI is very interested in working with you, Mr. Chairman, government agencies, and others to develop an additional consumer information label focused on those who may consider themselves unusually sensitive individuals.

This label will be attached to every roll of carpet manufactured by our industry, and will also be prominently displayed in retail outlets, as well as on each carpet sample.

This is one more example of our earnest intention to forthrightly address any issue put before us. This is a new and evolving program, and the carpet industry would really like the opportunity to have its voluntary initiative given a chance to succeed. If there is a problem with public perception of our testing and labeling program, or anything else for that matter, we will work hard to fix it.

#### Consumer Communications Database

Because we sell our product to wholesalers and retailers, carpet manufacturers have limited direct interaction with the consumer. Therefore, we are working aggressively with our manufacturer representatives, retailers, architects, interior designers, installers, and cleaners to establish a number of programs designed to educate the consumer about carpet and indoor air quality. Allow me to briefly discuss a few of these programs.

We have established a national database with the names of over 100,000 carpet manufacturers, manufacturer representatives, retailers, cleaners, installers, and others. This database is used for updates on indoor air quality. We have done several targeted mailings on this issue over the last year and intend to do more mailings in the near future. As we add to this list, we will have a system for contacting and educating everyone who handles carpet.

#### Consumer Information Brochures

In addition to targeted mailings, more than a million brochures have been distributed to consumers via the manufacturer representatives, retailers, installers, and cleaners in the industry. These brochures give consumers important information on indoor air quality issues and provide details on the proper installation and maintenance of carpet.

The brochure also helps the consumer gain perspective on carpet's contribution to indoor air quality. The brochure illustrates with a chart the extremely low emissions levels for carpets versus other ordinary products in our indoor environments.

#### Carpet Retailer Education

We are also developing a videotape that will be distributed to retailers across the country with instructions on educating consumers about indoor air quality, as well as how to respond to consumer questions and concerns. Allied organizations, such as the American Institute of Architects, the American Society of Interior

Designers, the Western Floor Covering Association, and the American Floorcovering Association are working with us as well. CRI has sent representatives to talk about carpets and indoor air quality at the organizational meetings of these groups across the country. In addition, we are working with them to include articles about these issues in their publications.

#### COOPERATIVE EFFORTS WITH THE FEDERAL GOVERNMENT

Mr. Chairman, as you can see from what I have said earlier in my testimony, we have had, and will continue to have, a cooperative relationship with the federal government.

#### Consumer Brochure and the CRI Database

Since the initiation of the carpet policy dialogue in the Spring of 1990 the CRI has fully cooperated with EPA in the search for a better understanding of carpet's contribution to IAQ and better ways to inform the public. CRI has distributed since October, 1992 an EPA consumer information fact sheet, along with additional CRI information. We are now working with EPA and CPSC, as they develop a harmonized and updated consumer information brochure. In order to assure maximum availability of the most up-to-date information to the public, we will help EPA and CPSC get the new brochure beyond carpet manufacturers and distributors to the carpet retailers, installers, and carpet cleaners, and ultimately to the consuming public. We look forward to this opportunity to share with EPA the expanded industry data base that CRI has built in order to expand our public information capabilities.

#### Historical Responsiveness to Public Concerns

It may be human nature to assume that an industry will attempt to dismiss any negative charge about its product, whether or not the assertion is true. The carpet industry, however, is so much a consumer driven industry that whether there is a problem with carpet or not, if the consumer perceives there to be a problem our industry must satisfy the consumers' demands. We have demonstrated our responsiveness to public concerns time and again on issues such as flammability, formaldehyde, combustion toxicity, and stain resistance. Allow me to provide some examples of how the industry responds to public concerns.

When the Consumer Product Safety Commission and the public became fire prevention conscious, the carpet industry produced a carpet that would not promulgate flame from cigarettes and other sources. Carpet, since 1972, has met very stringent flammability standards, making it almost impossible to propagate a flame and usually helpful in containing such a threat.

When public concern was raised about formaldehyde, carpet

manufacturers voluntarily eliminated the use of formaldehyde, even though the quantities used were so minute that they could not cause adverse health effects. Formaldehyde has not been used in carpet manufacturing now for over 10 years.

Carpet has been tested for combustion toxicity since 1983. This testing has demonstrated carpet to retard the development of toxic smoke, which provides occupants more precious time to escape burning buildings.

When consumers began asking for stain proof carpet, the industry researched and developed a product which was soil and stain resistant. Now that our collective attention is focused on indoor air quality, the industry early-on focused on how it could make a positive contribution toward the improvement of our indoor environment. If a problem with respect to carpet and indoor air quality were ever to be identified no one would need tell this industry that it must be fixed. Because it is a competitive market, and because it is the right thing to do, there will always be a race to satisfy every consumer demand.

#### CONCLUSION

The EPA/Anderson round robin evaluation, conducted with the assistance of the Consumer Product Safety Commission, has resulted in a conclusion that the Anderson Laboratories' carpet testing method is irrelevant to the debate on indoor air quality. This finding is consistent with independent evaluations of the Anderson test. So, should this close the book on Dr. Anderson's test? Yes, absolutely. Does this close the book on indoor air quality, and thus mark the end of the carpet industry's efforts? Not a chance. The CRI believes it is time now to move ahead. We must utilize science that is truly helpful to understanding the myriad of contributors to IAQ so that we can truly go about the business of improving the quality of the air we breathe.

There are four things that I hope the Committee and the public will take away from this hearing. One, the carpet industry is a proactive industry that is dedicated to addressing any legitimate concerns resulting from our product. Two, we refuse to rely upon, or utilize anything other than, sound, valid science on matters concerning the health and safety of our customers. Three, as members of the community at large, we believe we owe it to the public to keep them fully informed of all matters pertaining to the health and safety of carpet. Four, now that the industry, EPA, CPSC, and the Congress has made sure that the Anderson test has been seriously addressed -- and I hope you agree with me that there is nothing there -- it is time to move forward with serious science that will be helpful in our pursuit of better indoor air.

I thank the Chair, and invite your questions.

CRI SCIENTIFIC ADVISORY BOARD

Dr. Joseph Borzelleca (University of Virginia) -- Professor of Pharmacology and Toxicology, Medical College. Dr. Borzelleca is research coordinator for the CRI Scientific Advisory Board. His research activities in pharmacology and toxicology include studies on the safety of pesticides, drugs, food ingredients, industrial chemicals and devices. He is the author of or contributing author on more than 150 scientific articles and book chapters.

Dr. Morton Corn (Johns Hopkins University) -- Professor and Division Director, Environmental Health Engineering, Department of Environmental Health and Sciences, School of Hygiene and Public Health. Dr. Corn is also the Director of the NIOSH Educational Resource Center in Occupational Safety and Health and the Director of the National Institute of Environmental Health Sciences Research Center.

Dr. Alan Hedge (Cornell University) -- Associate Professor, Department of Design and Environmental Analysis, College of Human Ecology. For more than 10 years his research and teaching activities have focused on office design, workplace ergonomics and indoor air quality and how they affect health, comfort and productivity of workers.

Dr. S. Michael Phillips (University of Pennsylvania) -- Professor of Medicine, School of Medicine, Allergy and Immunology Section. Dr. Phillips is also a Senior Scholar in Clinical Epidemiology at the University of Pittsburgh. A clinical allergist, Dr. Phillips is a member of several professional and scientific societies including; the American College of Allergy and Immunology, American Association of Immunologists, American Society for Clinical Investigation and the Clinical Immunology Society.

Dr. Paul Stolley (University of Maryland at Baltimore) -- Professor and Chairman, Department of Epidemiology and Preventative Medicine, School of Medicine and Professor of Medicine at the Division of General Medicine. Dr. Stolley is a member of a number of professional and scientific societies including: the American Association for the Advancement of Science, International Epidemiological Association, Physicians for Social Responsibility and the Society for Epidemiologic Research.

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Mr. SYNAR. Thank you, Mr. VanGelderan. I appreciate your comments.

Let's start with you, if we could. Your testimony frankly minces few words about the Anderson test. You think it indicates that not only is it invalid, it is misleading.

Is that a pretty good summary of your feelings about the test?

Mr. VANGELDEREN. Yes, sir. After all the research that has been done, that is the conclusion from our scientists.

Mr. SYNAR. Dr. Stott, you have been especially critical of the repeated stress the test animals go through. You say it is like being stuck in your gym locker repeatedly. Then you are asked to stand up straight. Surely you don't challenge the credentials and expertise of Dr. Alarie, do you? He is a noted researcher who has done work for the Carpet Institute on this issue. He said placing those mice in those tubes is not an explanation for her results.

Let me ask you, when the industry has done its experiments using controls with no carpet in the chamber, have you killed any of the mice?

Dr. STOTT. Yes, a colleague at Monsanto, Dr. Rich Dudek actually managed to kill mice with water vapor present.

Mr. SYNAR. I didn't ask you that. I asked you, when the industry does its experiments using controls—we are not even talking about carpet—do you just kill mice by the handling of them, putting them in the tubes?

Dr. STOTT. Yes, it is quite easy to do.

Mr. SYNAR. So in your control, mice are stuffed in the chamber and they die sometimes, but a lot of times they don't die; is that correct?

Dr. STOTT. That is correct.

Mr. SYNAR. As you heard from Dr. Anderson and Dr. Alarie, depending on the carefulness of the thing, it is not something that just the handling of the animals that necessarily causes that conclusion; is it?

Dr. STOTT. I am not sure I understand.

Mr. SYNAR. You cannot have it both ways. You cannot say the test is onerous and it kills the mice by putting them in the tubes and then use the same test.

Dr. STOTT. The test was designed to do one thing. What it is being used for is an entirely different situation. It was designed to be used one time and one time only. Indeed, our pathology, all our findings indicate it is highly stressful on an animal. We see brain stem hemorrhage that suggests that.

Mr. SYNAR. You contradict Dr. Alarie's 60 days or more that he has used these in his studies?

Dr. STOTT. I find it rather remarkable.

Mr. SYNAR. So if the Anderson test is no measure of what problem consumers might face with carpet, can you tell us what is?

Dr. STOTT. So far, to the best knowledge I have of tests conducted using appropriate methodology to measure the important pinpoints, I can see nothing that suggests carpet is a problem.

Mr. SYNAR. What tests prove that? Do you have such tests?

Dr. STOTT. If you are interested in looking at neurotoxicity, death, and that sort of thing, you use appropriate, well-understood,

and well-used methodology, tests that have been undertaken for years and years by toxicologists.

Mr. SYNAR. What tests would explain the kinds of situation Linda Sands just described to us in the panel before you?

Dr. STOTT. I don't think there is a toxicology test in an animal that can entirely describe the effects of a cognitive beast like a human.

Mr. SYNAR. Mr. VanGelderden, has anyone ever been injured by chemicals in carpet?

Mr. VANGELDEREN. Not to my knowledge.

Mr. SYNAR. What has your industry done to develop a test that can give the public assurance that what they are using is not harmful?

Mr. VANGELDEREN. That is a very good question. I think that is why we are here. We need scientific consensus to determine what we all can pursue in order to get those answers.

Mr. SYNAR. Isn't it true that Dr. Alarie's first tests were done as a consultant to CRI?

Mr. VANGELDEREN. That is correct.

Mr. SYNAR. He managed to replicate the Anderson method as you heard today; do you agree with that?

Mr. VANGELDEREN. Yes. At that time, he even gave us a report in which he said the results were inconclusive. That is why we went on to additional testing because it was important to get as much input as possible.

Mr. SYNAR. Are you going to use Dr. Alarie in the future?

Mr. VANGELDEREN. Sure. We have used him off and on many times.

Mr. SYNAR. Can you assure us in the production of thousands and thousands of square yards of a particular kind of carpet that each square yard has the same kinds of chemical characteristics, moisture content or off-gassing potential?

Mr. VANGELDEREN. Within quality control parameters, yes.

Mr. SYNAR. What are those quality control parameters.

Mr. VANGELDEREN. They are determined by people who know better than I that you need to appreciate within very, very small quantities because, after all, when you take a look at any product, it is what we are exposed to, and what we are exposed to in carpet is extremely low as that chart demonstrates.

Mr. SYNAR. Are there industry specifications?

Mr. VANGELDEREN. Extremely, extremely low as that chart will demonstrate. Quality control measures are primarily by each manufacturer.

But let me add to that, please. And that is, there are certain processes that require parameters of quality control or otherwise it loses the integrity of the carpet. It isn't carpet.

For example, when carpet is cured, it has to be cured within 25 degrees, 250 to 275 degrees. If it is too low, then it is too wet, and you can't use it.

Mr. SYNAR. But these specifications—

Mr. VANGELDEREN. If it is too high, it becomes too hard. It can't be used.

Mr. SYNAR. These specifications apply—vary from manufacturer to manufacturer, do they not?

Mr. VANGELDEREN. There could be some small changes, but very few, and they are still within parameters because, otherwise, there wouldn't be a piece of carpet.

Mr. SYNAR. What are those parameters again? Is there a standard, is what I am trying to get to. Is there an industry standard?

Mr. VANGELDEREN. That is a difficult question to answer, and I don't mean to be evasive.

Mr. SYNAR. There is either a standard that, as a manufacturer, you can judge your product by or there is not. Is there a standard?

Mr. VANGELDEREN. There are all kinds of standards for color fastness or performance, for tensile, for construction. And there are many of those kinds—

Mr. SYNAR. What about chemical content?

Mr. VANGELDEREN. Chemical content is something that is determined by the product. And there are some variances from one product to the other, of course.

Mr. SYNAR. Are there standards for chemical content? Just yes or no. Are there standards for off-gases?

Mr. VANGELDEREN. No, sir.

Mr. SYNAR. Now we have heard that some of the characteristics in the final product delivered to the retail customer can vary. For example, the moisture content might be so high that at the time the carpet is sealed at the factory, by the time it reaches the customer it can literally be moldy. Do you know if that ever happened?

Mr. VANGELDEREN. All kinds of things can happen in transport, in inventory, in delivery.

Mr. SYNAR. So it could happen?

Mr. VANGELDEREN. Sure.

Mr. SYNAR. What happens to that carpet? What is done with it, with such a carpet?

Mr. VANGELDEREN. If that is known down the pipeline as having characteristics that would not be satisfactory to the customer, it is not sold.

Mr. SYNAR. It is not sold. Does the industry have a record of the percentage of carpets returned by retailers, for whatever reason?

Mr. VANGELDEREN. For whatever reason, yes.

Mr. SYNAR. Can we have that information?

Mr. VANGELDEREN. Certainly. Be glad to give it to the committee.

[The information was not available at time of publication.]

Mr. SYNAR. As you know, the possible variation in carpet runs is behind one of the criticisms of the green tag program. Testing each kind of carpet once, only once a year, could miss those variations that occur monthly, weekly, and even daily. So you think that a sampling of one piece of carpet once a year is sufficient to know the particular kind of carpet is meeting the "green tag" criteria?

Mr. VANGELDEREN. The amount of testing and the frequency has no relationship as to the actual performance of the carpet. Keep in mind, this is a voluntary program that is simply designed to reduce emissions.

Mr. SYNAR. But you are testing once a year. And are you telling me, then, because you are only testing once a year that the variation of the carpet made during that year does not change signifi-

cantly to where you need to test more? Is that correct? Is that what you are saying?

Mr. VANGELDEREN. Not to the extent it would make any significant impact.

Now please keep in mind—

Mr. SYNAR. Is there a standard?

Mr. VANGELDEREN [continuing]. This program is just getting started, under way. You know, we barely have it a year in operation. There are lots of things that we are learning. It is a dynamic program.

Mr. SYNAR. OK. For the record, for those carpets which fail the "green tag" standard, what happens to them?

Mr. VANGELDEREN. There is the assumption that there is something that is not right with that, and that is not true.

Mr. SYNAR. Can they be sold?

Mr. VANGELDEREN. Those that do not pass the criteria are not necessarily having any attributes that are harmful or that are not useful.

Mr. SYNAR. They can be sold, can they not?

Mr. VANGELDEREN. Yes, they can.

Mr. SYNAR. Now, the "green tag" program is designed to help reduce the chemical emissions from carpets. That is correct, isn't it?

Mr. VANGELDEREN. That is its purpose, yes, sir.

Mr. SYNAR. All right. Now do manufacturers routinely analyze the carpets they make to determine whether the emitted chemicals are in their product?

Mr. VANGELDEREN. Yes, they do.

Mr. SYNAR. All right. Then why after all these years of controversy did CPSC announce only 3 months ago that it finally analyzed all the typical chemical contents at some cost to the taxpayers if you already are doing it?

Mr. VANGELDEREN. It depends on what you expect in that kind of a report. What the CPSC requirements were, were different.

Mr. SYNAR. Have you all ever provided EPA a list of all the chemicals, including stain repellents, fire retardants, et cetera, that go into carpet?

Mr. VANGELDEREN. The list of chemicals is readily available.

Mr. SYNAR. Have you ever provided it to EPA?

Mr. VANGELDEREN. I would have to check with our people.

Mr. SYNAR. Has EPA ever asked you for it?

Mr. VANGELDEREN. Not officially.

Mr. SYNAR. They have asked you unofficially?

Mr. VANGELDEREN. Not to my knowledge, sir.

Mr. SYNAR. So they haven't asked.

Mr. VANGELDEREN. Right.

Mr. SYNAR. All right. You heard earlier that the potential health effects of chemicals emitted from carpets are expected at low levels and therefore unknown. Would you agree with that statement?

Mr. VANGELDEREN. I am sorry, sir? You went so fast, I missed it.

Mr. SYNAR. You heard earlier that potential health effects of chemicals emitted from carpets at the expected low levels are unknown. Do you agree with that statement?

Mr. VANGELDEREN. That is correct. And all of the weight of science at this point indicates that there are no harmful effects linked to what comes off carpet.

Mr. SYNAR. All right. Now assuming it is a low number of very real complaints from some consumers, it would appear that the effect that we are looking for is a subtle one, that there is not really a clear pattern here that we are trying to follow. Could that be due to unexpected chemical combinations or a combination which only appears infrequently in slight variations in the manufacturing process?

Mr. VANGELDEREN. Well, all of that is based on evidence that apparently is part of the Anderson test. All of our scientists that know much better than I indicate that there is nothing in carpet that is linked to anything that has been reported.

And I might add, sir, that that is part of our dilemma here. I think we need to get to the bottom and find some solutions. There is a lot of speculation here as well. That is, the premise upon which there may or may not be a problem.

I think what we really need to find out is we need to have a consensus of the people that are involved to find out what do we do at this point. How do we proceed? What is the right test? What is not the right test? What is acceptable?

We are willing to commit resources, but how do you commit resources if you don't know if what you are going to do is going to be accepted by those that you work with? And that is the intent behind this, to get a consensus research strategy that we can all agree on, that you agree on, that EPA agrees on, that we can agree on, and actually proceed posthaste to get that done.

Mr. SYNAR. We are going to get into that and other things. Doctors, both of you, is that possible, what I just asked?

Dr. BORZELLECA. If the question is do we have a test method for determining the potential adverse effects of these chemicals at very low levels—is that your question, Mr. Chairman?

Mr. SYNAR. Yes.

Dr. BORZELLECA. We use the best—we use the most sensitive animal that we can. We use the best methodology that we can. And you have to be able to observe some sort of effect. The extent of the effect you get is always a function of the dose.

We have an expression in toxicology. It is the dose that makes something a poison. So that any chemical, water included, at a sufficient intake will elicit an adverse effect.

So it is quite possible that using the best methodology we have, the best science that we have and all of that, we may still not be able to identify an effect of these chemicals at that level. If we increase the level, then we begin to see something.

Mr. SYNAR. Well, could that be the reason for the low number of complaints?

Dr. BORZELLECA. That the level is very low? Yes, sir, I think that is one possibility.

Mr. SYNAR. Mr. Sanders.

Mr. SANDERS. Thank you, Mr. Chairman.

In the paper that you handed out entitled "Anderson Method Seriously Flawed," the last point that you make—and I think the chairman touched on this—you state the testing apparatus alone

injures and kills mice. Would you not agree that earlier this morning we heard from both Dr. Alarie and Dr. Anderson to suggest that this apparatus has been used for many, many years, and I presume hundreds and hundreds of studies, and, in fact, mice have not died except under very rare circumstances, mostly having to do with carpets?

Dr. STOTT. The hundreds and hundreds of uses have been a single exposure. In other words, the animal has been in the apparatus one time, for about 10 to 30 minutes, as much as 3 hours. There are variations of that.

This is an instance where we are taking this methodology, and we are going to repeatedly put animals in and out, and it is very stressful, and you do see a lot of physical injury. When you necropsy the animals and a pathologist is looking at these issues, you see the damage.

Mr. SANDERS. But I think both Dr. Alarie and Dr. Anderson can disagree with you.

Dr. STOTT. I don't think they conduct necropsies with a pathologist. We do.

Mr. SANDERS. Let me ask you this. In your written statement you say quite definitively, "carpet does not adversely affect public health." Right?

Dr. BORZELLECA. Yes, sir.

Mr. SANDERS. How many people in this room right here believe that they have experienced health problems related to carpet? Please raise your hand. One, two, three, four, six, ten. I see about 15 people in this room who themselves believe it, and, obviously, this is a very small number of the total. What do you say to those people? Are they crazy?

Dr. BORZELLECA. No, no. First of all, I am not a physician so I can't make a diagnosis about their condition.

Second, if they perceive that they have the health problem, they do.

And I am not denying that there are people who have an adverse reaction, or may have, to carpet. I think these people are hypersensitive or allergic to some component of the carpet or some component of the internal environment. And we don't know what that is.

Mr. SANDERS. OK, fine. I mean let's just pick up on that, doctor. What you are saying is that it may well be possible that, for whatever reason, which we don't yet know, some of the people in this room and some of the people not in this room, for whatever reason, may, in fact, suffer health problems when exposed to carpets, or certain carpets. Is that correct?

Dr. BORZELLECA. Or to something inside the room with the carpet, because they are not only exposed to carpet when they are in that particular room. There is furniture. There is paneling. There are curtains. There are draperies. There are other materials.

Mr. SYNAR. Will the gentleman yield, Mr. Sanders? We have got a contradiction on this panel. I asked you under oath this question, has anybody ever been injured by chemicals found in carpets? And your answer is no. Now, the doctor you brought with you to back you up has just said that some people may be affected because they

are extra sensitive. Now do you want to change your answer or which one is it? Which answer are we going to go with here?

Dr. BORZELLECA. May I qualify?

Mr. SYNAR. Yes.

Dr. BORZELLECA. If an individual has an allergic reaction to a substance, that individual certainly is experiencing some adverse health effects, as we saw this morning. That is something we can't identify in the laboratory. We have no way of predicting who is going to be allergic to something or even what the allergic potential of a chemical is. We only know that what humans have been supposed—we measure other effects in the laboratory. We have no tests currently available to predict allergenicity.

So when I talk about an adverse health effect I am including an allergic reaction or some highly hypersensitive reaction.

Mr. SYNAR. How are consumers supposed to know they are hypersensitive until the carpet is put in their house?

Dr. BORZELLECA. Well, there are appropriate clinical tests that could be done to show that there is something. The allergist will provide you, conduct some tests and show that you are allergic to carpeting or to dust or to dander, to mites, dogs, cats, what have you.

Mr. SYNAR. Well, what has the industry done to develop the different tests maybe to distinguish between extra-sensitive people and nonextra-sensitive people?

Dr. BORZELLECA. Mr. Chairman, it has—I know that we have retained the services of Dr. Phillips from the University of Pennsylvania who is a clinical immunologist who is working with us to try to develop some kind of test to demonstrate a relationship between exposure to something in the internal environment and the manifestation of these signs and symptoms of disease. We don't have such a test yet.

They can look for things like certain antibodies that may increase when you are exposed to certain materials. We don't have a test at this time.

Mr. SYNAR. Mr. Sanders.

Mr. SANDERS. OK. Let me just pick up on the chairman's discussion.

The gentleman writes me and I have read releases in his letter, Mr. Barry Carr from California. And he writes, I find that an exposure to some carpeting in only a few minutes will trigger seizures and asthma. Have you heard of other people who, when exposed to certain types of carpets, undergo strong physical reactions?

Dr. BORZELLECA. There have been reports that when individuals are exposed to—they are in a room where there is carpeting, that they do develop asthma—like symptoms, yes, sir.

Mr. SANDERS. Doctor, aren't we really going around in circles? I don't know that there can be a carpet unless the carpet is in the room. So, essentially, what you are saying is it is never the carpet, it is always the room?

Dr. BORZELLECA. Mr. Sanders, I didn't say that. What I said was that in the room, in addition to the carpet, we have other materials. In order to identify the carpet, one needs to be able to make an extract of carpet, to inject it into the person, to have him give you a reaction in the skin that elicits this allergic reaction. Then

I can say the carpet is probably the reason for this. But I would need to take an extract of the furniture and the other materials.

Mr. SANDERS. Have you done that ever? Has that ever been done?

Dr. BORZELLECA. I don't know if it has been done for these people. For a physician to make a diagnosis that that person is sensitive to carpet, he should have done that test.

Mr. SANDERS. But let me ask you—the statement that Mr. VanGelderden gave us said, quite definitively, "chemicals do not adversely affect public health." I would presume, therefore, that the tests have been done by the Carpet and Rug Institute which show that when you go through that process there is no response on the part of the patient.

Dr. BORZELLECA. Mr. Sanders, let me explain what we did. We looked at the available information, both animal and human—we meaning the Scientific Advisory Board. We are just completing that. We will have a report by the end of summer, maybe a bit sooner. We did not see in the data that had been published that there was an association between these reported effects and exposure to carpet.

I have explained to the chairman that an allergic reaction is considered. It is an adverse effect, obviously, but that is something we can't predict. And you can only prove it—you can prove it is carpet, as I said, if you take an extract of it. And these people need to be tested, and I am not sure that all the physicians are doing that.

Mr. SYNAR. Let me interrupt the gentleman. We will begin another round but before I turn to Mr. Mica, Mr. VanGelderen, does the CRI have a record of people who have called to say they have been made sick by carpets?

Mr. VANGELDEREN. Yes, sir.

Mr. SYNAR. Do you have a file of that?

Mr. VANGELDEREN. Yes, sir.

Mr. SYNAR. Have you ever made it available to the EPA or CPSC?

Mr. VANGELDEREN. No, sir.

Mr. SYNAR. Will you make it available to the subcommittee?

Mr. VANGELDEREN. Be happy to.

[The information was not available at time of publication.]

Mr. SYNAR. All right.

Mr. Mica.

Mr. MICA. Thank you, Mr. Chairman. I am not sure if this product comparison chart which was submitted—will that be part of the record?

Mr. SYNAR. Yes, that is part of the record.

Mr. MICA. OK. Just wanted to make sure that is part of the record. That is what I referred to before.

Gentleman, now you two were the scientists or the more experienced. I want to ask you a question here. One of the pieces of carpeting, is it correct that the piece of carpeting the staff took was in the Capitol for 10 years? I want to ask you a question—

Mr. SYNAR. Or longer.

Mr. MICA. Or longer. OK.

Let me ask you a question. Remember—if you were here—I talked about the rodent problem in the U.S. Capitol, and I wasn't

referring to the politicians. I was talking about we do have a real rodent problem.

Now, gentlemen, carpeting does absorb some chemicals, et cetera. If I told you that the—we just checked with the Architect of the Capitol—and for at least the past 10 years they have had a contract to spray the Capitol. And some of this they did just tell us goes on carpeting. So if they are putting a chemical on the carpeting to kill rodents, do you think it might hurt these little mice that Dr. Anderson has in her lab, after being treated continuously with rodent poison?

Mr. SYNAR. Before you step into this—

Mr. MICA. I would just like to ask—

Mr. SYNAR. Let me correct the gentleman before you go any further. This piece of carpet was taken off a roll which is used when replacements were needed. It hasn't been treated with any chemicals used for pest control.

Mr. MICA. It has been around the Capitol which is being sprayed about—

Mr. SYNAR. No, it is on a roll, Mr. Mica. It is on a roll. They don't go in there and spray rolls.

Mr. MICA. OK. Then I will ask you another question.

The chairman asked you a question about the transport of carpeting. If that carpeting stayed around the U.S. Capitol, which—you know, I am from Florida, and the air conditioning doesn't keep up here, and the mold can build. So it was in this roll.

Do you think some mold could grow in 10 or 12 years and that mold might affect that poor little mouse? You two are the—

Dr. BORZELLECA. You want to go first?

Dr. STOTT. Obviously, I can't address the specific carpet. It is a possibility.

Mr. MICA. There is a possibility of moisture building up. And that carpeting, that was older, probably had a different type of latex backing, too, than the current carpeting that you all have upgraded as far as the—what is it? What is it—PC?

Dr. BORZELLECA. Four PC.

Mr. MICA. Four PC content, would that have a different content?

Dr. STOTT. One would expect—

Mr. MICA. So it might have mold, and it might have different contents.

Didn't you also just say, sir, that there are 80 million installations in the country? Usually when people put carpeting in, they are renovating, right? So they put in new paint or they put in vinyl. They put in other materials. New curtains we heard of. So there are probably a thousand kind of paints, aren't there?

Dr. BORZELLECA. I don't know how many.

Mr. MICA. Hundreds of kinds of paints. And how many carpeting manufacturers are there? How many types of carpets are there?

Mr. VANGELDEREN. There are 130 carpet manufacturers.

Mr. MICA. 130. So we have the possibility of thousands of combinations. This could be a product liability attorney's delight for lawsuits and harassing your particular industry, do you think?

Mr. VANGELDEREN. It is already in progress, sir.

Mr. MICA. Do you think that this hearing will help that or hurt it? I mean, is that going to have any impact? Do you think you will have more instances?

How much carpeting is produced domestically in the United States that is consumed here?

Mr. VANGELDEREN. 1,300 million square yards.

Mr. MICA. What percent of all installations' carpeting is that? You know, domestic produced, is it 90 percent?

Mr. VANGELDEREN. Ninety-five percent.

Mr. MICA. Ninety-five percent. So what we could do here today is provide a good opportunity to put more of our people out of business, right?

Mr. VANGELDEREN. Yes, sir.

Mr. MICA. Good. Well, I haven't enjoyed participating in it. Thank you.

Mr. SYNAR. Mr. VanGelder, on pages 11 and 12 of your statement you mention the idea of putting a warning label of some kind on each roll of carpet. Can you tell us a little bit more about that idea? What is going to be in the content? What should the label say?

Mr. VANGELDEREN. That is why we feel that needs to be a consensus approach, to make sure that we address all of the concerns that government, both public and private, and all of the parties have. And we want to work with everyone to make sure that what we come up with is going to be acceptable, useful and addressing the issue.

Mr. SYNAR. Now, when could we expect to see such labels on carpets in the stores of our country?

Mr. VANGELDEREN. As soon as the content has been decided on. It would take 90 days to get that process started and recognizing, of course, that that would go on carpet as it is manufactured and then anything after that.

Mr. SYNAR. Are you going to be better able to track any consumer complaints so that we get a pretty good sense of the problem, small, medium or large? Are you going to have a data bank that is going to help you?

Mr. VANGELDEREN. Yes, sir, we think that is important.

Mr. SYNAR. Now, with tens of thousands of retail outlets, how are you going to make sure that the consumer receives accurate, up-to-date information and not some kind of bland assurances as the attorney general's office in New York says the green tag program presently gives?

Mr. VANGELDEREN. We have been in the process of putting together a data bank, and we have over 100,000 in that data bank. Keep in mind that there are—

Mr. SYNAR. 100,000 what?

Mr. VANGELDEREN. Companies like retailers, distributors, manufacturers, installers, cleaners—in order to get that data bank so that we can communicate with them and provide them with information.

Mr. SYNAR. What kind of information are you going to provide them?

Mr. VANGELDEREN. We have utilized this already twice, and we have distributed information that the industry has published as well as the EPA and the Consumer Product Safety Commission.

Mr. SYNAR. I thought we heard from the CPSC they have never done anything on giving rules or regulations or standards. What have you sent?

Mr. VANGELDEREN. Well, these are fact sheets to help consumers understand the issue of carpeting, indoor air quality.

Mr. SYNAR. Are they the press releases that Mr. Peterson talked about?

Mr. VANGELDEREN. Yes. They call them fact sheets.

Mr. SYNAR. Mr. VanGelderan, if I told you that this whole problem of consumer complaints could go away tomorrow if you wrote a check for \$10 million, would you consider that a bargain?

Mr. VANGELDEREN. We want to do the right thing. I think that we have a responsibility here to get to the solutions, and that is what we want to do. And we are willing to commit resources to get that done.

It is not right for an industry to be held hostage when we don't know what the answer is. And we feel there is a responsibility. We all have to get to the bottom of it and have people understand what carpet's role is, as well as the entire indoor environment.

Mr. SYNAR. A quick survey that we took of some experts suggests that a comprehensive research program, which you have just committed to, would probably cover five major areas: Chemical content of carpets; chemical composition of carpet emissions; methods, developments and toxicology testing in humans and animals; evaluation of worker risk, both manufacturers and installers; and the review of the problem situations.

They also tell us that we could easily turn this venture in less than 3 to 5 years for \$10 million to \$15 million. Are you willing to do that?

Mr. VANGELDEREN. Yes, sir, if that is—if it is a consensus approach, and we agree on it, you bet.

Mr. SYNAR. You can't afford not to participate in such a program, can you?

Mr. VANGELDEREN. You are absolutely right. The public is our consumer, and we have a consumer product, and we had no intention in the past, now or in the future, to have a product that would be in any way knowingly harmful to anyone.

Mr. SYNAR. Well, the reason I bring that up is that you don't need me to tell you the budget problems we have up here. You see them every day in the paper. But I don't want to hold a hearing every 6 months with EPA on the failure to regulate because they don't have the resources. And I think if the industry is willing to pay, we can get to the bottom of this a lot faster. And I hope that this kind of semicommitment I have from you is something that will be remembered.

Mr. Sanders.

Mr. SANDERS. Thank you, Mr. Chairman, and I agree very much with your thoughts on that.

Mr. VanGelderan, to the best of your knowledge, has the carpet industry undergone changes in terms of the production of carpets since 1986 and 1987 when companies like DuPont introduced Stain

Master and so forth? In other words, might there be something that is going on that in recent years has changed production that is now causing us problems that wasn't previously the case?

Mr. VANGELDEREN. I don't know that that is necessarily related to problems, but the industry is constantly looking for ways to improve its products—better efficiency, better performance. So it is constantly evolving into a better product and having it become a better value for the consumer.

Mr. SANDERS. But is it possible that, in the many changes that take place, that perhaps there is a mix of chemicals that is now causing a problem that wasn't the case say 10 years ago? Is that conceivable?

Mr. VANGELDEREN. Anything is possible, but we are not aware of any.

Mr. SANDERS. Well, Mr. VanGelder, how many—to the best of your knowledge—how many carpets have been removed from homes or offices as a result of complaints in the last few years?

Mr. VANGELDEREN. I don't have that number, sir.

Mr. SANDERS. Do you have that information in your office?

Mr. VANGELDEREN. No, I wouldn't. That would have to be checked because those are decisions made individually by carpet companies, and it is a relationship between carpet companies, distributors, dealers and anyone who handles carpet up and down the pipeline.

Mr. SANDERS. Is that some information that you think you can get to us?

Mr. VANGELDEREN. We could make an attempt. Customer relationships, that is a—we are treading on some very thin ground there.

[The information was not available at time of publication.]

Mr. SANDERS. Let me ask you the same question—and the doctors who are with you—the same question that I asked others. You have repeated in your statement that you basically don't think that carpets are causing health problems for human beings, correct?

Mr. VANGELDEREN. I don't believe there is, and the scientific evidence that we have seen supports that.

Mr. SANDERS. But how do you respond—how do you respond to physicians, to people in my State of Vermont who are experiencing the problem? And I heard what the doctor over here said. But you have instances—I mean, people are not stupid.

When somebody like Linda Sands brings in, you know, healthy family, healthy woman, brings in a new carpet, the house remains the same. She has been there for a number of years. Brings in a new carpet. Suddenly there is illness. We can make a reasonable assumption that the cause of the problem is the carpet.

This happens with Beverly Shott. This happens with other people. The changing factor is not paint. The house hasn't been painted. It is a new carpet.

How do you respond to those people? How do you respond to the physicians who have written to me and to Vice President Gore suggesting that they believe there is a direct correlation? Are they all wrong?

Mr. VANGELDEREN. We have a responsibility to listen to any and all individuals from wherever source and to try to learn from that

what the situation might be. We have even suggested and we are trying to put into effect and motivate manufacturers to put model programs together that will actually go onsite and learn what is happening. There are so many things in this arena that we don't know, and I think that is part of our quest. We need to find out so we can be of help.

Mr. SANDERS. I would hope—I agree with that. I would hope that in your investigation—and we all want to understand what is going on—obviously, you want a safe product. We want a safe product. I would hope that you would not turn a deaf ear to those physicians and researchers who think that there is a problem right now, that you would involve them in the process of trying to educate you to what they think the problems are.

Mr. VANGELDEREN. We will not turn a deaf ear to anyone.

Mr. SANDERS. All right. Will you be in discussion with some of these physicians who believe that the patients that they are treating have been made ill by carpets?

Mr. VANGELDEREN. We would be happy to do that.

Mr. SANDERS. OK.

In terms of the point that the chairman made—and I must tell you I am happy to hear that you are going beyond where the EPA is. That is somewhat amazing to me, but that is fine. You are suggesting that, as the New York State attorney general's office had requested, that signs be posted in stores with warning labels, with signs warning people about potential problems. Is that what I am hearing you say?

Mr. VANGELDEREN. We are saying that there needs to be consumer information out there, and that form needs to be determined by all of us that are involved.

Mr. SANDERS. Am I correct—

Mr. VANGELDEREN. Does not necessarily mean it has to be a warning label. You know, warning labels are extremely alarming. I think what we have a responsibility to do is something that is positive, helpful and useful and preventive.

Mr. SANDERS. When you say on page 12 of your statement, this label will be attached to every roll of carpet manufactured by our industry and will also be prominently displayed in retail outlets, I presume we are talking about more than a little label in a retail outlet. I gather you are meaning a poster or sign of some sort, is that correct?

Mr. VANGELDEREN. Yes, sir.

Mr. SANDERS. OK.

Mr. VANGELDEREN. I am pleased to say that the retail community is becoming more conscious of the need for them to communicate with the consumer, to engage them on these issues.

And it is very much an education process, of course. We have even developed a video, a training video to help them understand that, to make sure the correct information gets out there.

So we are intensifying our efforts on this educational process.

Dr. SANDERS. I would hope that, as you develop your label and your posters, that you be in consultation with the attorneys general and the people from New York State. I think they have done some pretty good work in some suggestions. Will you be involved with them as you develop the content for your labels and posters?

Mr. VANGELDEREN. Yes, sir, we have a standing invitation to do that. And from some we have received reciprocal information, and some we have not.

Mr. SANDERS. I would be very appreciative if you would keep our committee abreast of developments in that area.

Mr. VANGELDEREN. We would appreciate that. And the dissemination of facts rather than speculation would be extremely helpful to the industry and I think the consumer as well.

Mr. SANDERS. Thank you, Mr. Chairman.

Mr. SYNAR. Thank you, Mr. Sanders.

Let me take this opportunity to say that it is very clear, if one has sat here through the last couple of hours, that you all are much more responsive than the regulators, both in money and contacts. That is to be commended. You know, this is a town of new Democrats. This may be a new industry approach that we have long been waiting for. So I do appreciate it, and it hasn't been overlooked.

This concludes our hearing today—

Mr. MICA. Mr. Chairman, would it be possible to keep the record open for submission?

Mr. SYNAR. We always do, Mr. Mica. That is the general rule.

Mr. MICA. One other question—can I?

Mr. SYNAR. Turn on your mike.

Mr. MICA. Yes. I just would like one question. I was given some information that I haven't had a chance to ask a question on and maybe my colleague from Vermont could supply.

Some folks from EPA had indicated that there were some questions about some of the credentials of some of the doctors who had been involved as far as their credentials. Would it be possible to get for our records some of the background of the doctors who have dealt and their credentials?

Mr. SYNAR. We will be more than happy to include in the record, and I would ask all the doctors who—Ph.D. people who are here today, to provide for us with your resumé.

Mr. MICA. Sir, I was referring to the doctors that—

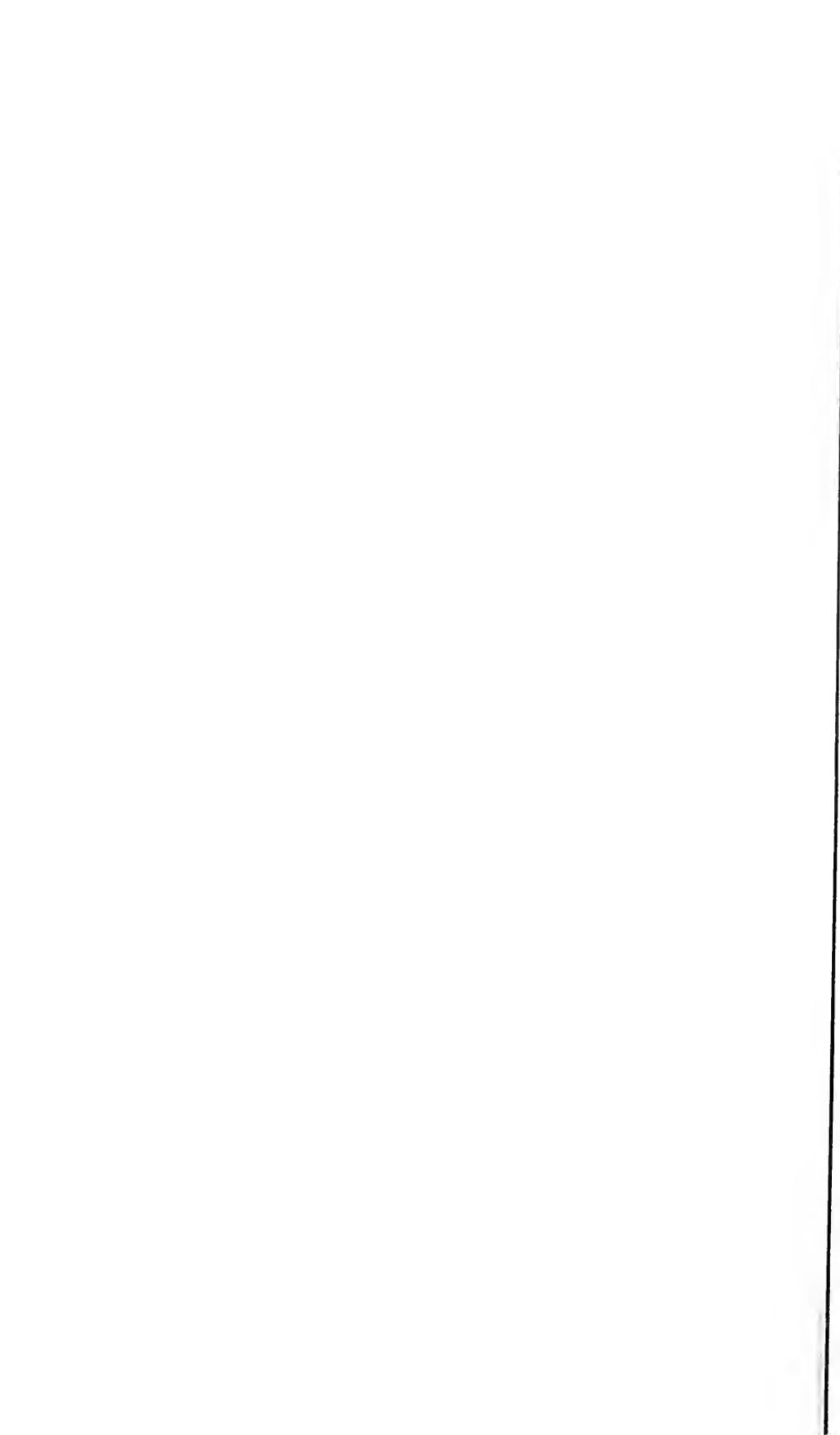
Mr. SYNAR. Mr. Sanders has already agreed to provide the names of the doctors, both to the carpet community, the EPA and CPSC, and I am sure he will make that available to you.

Mr. SANDERS. It will all be part of the record.

Mr. MICA. Thank you. Thank you, sir.

Mr. SYNAR. This concludes our hearing, and we do appreciate the patience of everyone here.

[Whereupon, at 2:06 p.m., the subcommittee adjourned, to reconvene subject to the call of the Chair.]



## APPENDIX

### MATERIAL SUBMITTED FOR THE HEARING RECORD

Environmental Medical Specialist  
Board Certified Pediatric Allergist

Doris J. Rapp, M.D., P.C.  
Fax (716) 875-5399

Doris J. Rapp, M.D., F.R.A.A., F.A.A.P.  
Environmental Allergy Center  
2757 Elmwood Avenue  
Buffalo, New York 14217  
Phone (716) 875-5578

June 7, 1993

Congressman Bernard Sanders  
1 Church St.  
Burlington, Vermont 05401  
FAX 802-860-6370  
ATTN: Anthony Pollina

Re: Carpet Hearing

Dear Congressman Sanders:

Enclosed you will find some information in relation to the toxic effects of carpets on students, as well as teachers. All of the patients seen had a positive history for allergies. This strongly suggests that people who already have a slight immune dysfunction are more prone to sensitivities from toxic substances such as synthetic carpets, carpet adhesives, pesticides, etc.

As you know, animal research has already shown that certain synthetic carpets can cause the death of mice. Obviously someone needs to ascertain which part of the synthetic carpet is causing difficulty. It could be the fiber, the binder, and/or the adhesive. There is not one possibility for the toxic effect but many. Some of the effects, however, are not necessarily toxic in humans. In patients who have chemical sensitivities, the important factor is not how much someone is exposed to but how sensitive that particular individual is to that chemical.

Chemical sensitivities are causing enormous problems at the present time in younger and younger children and more and more adults. The book entitled Chemical Exposures, Low Levels and High Stakes by Nicholas Ashford, M.D. and Claudia Miller, M.D. certainly reviews the research in relation to the toxic effects of chemicals. A new book entitled Chemical Sensitivities by William Rea, M.D. (for physicians) should be released soon. The first volume of this book already indicates that a wide range of chemicals of the type used in carpets can damage the immune system in a number of ways. More details, specific patient studies, and innumerable references will be given in the next volume of his book.

I am a board-certified pediatrician, pediatric allergist, and environmental medical specialist. Over the years I have treated a large number of children from all over the United States, many of

whom could no longer attend school after new carpets were placed in their school. As mentioned before, synthetic carpets and the adhesives used contain a wide variety of chemicals which are proven to be toxic, particularly to the peripheral and central nervous system. Recently in upper New York State about 30 percent of the teachers in one school and, as indicated by an informal survey done by the parents (which is enclosed), over 30 percent of the students have had symptoms which suggest toxic effects from carpeting.

The onset of the children's and teachers' symptoms is directly related to the laying of the carpet. Some of the teachers are unable now to return to work. Some are home-bound. Some of the students cannot even step into the school building now without developing symptoms. Not only do these individuals have symptoms in the school with the synthetic carpet but they have difficulty now going to church, going into department stores, and going into restaurants because they appear to have the "spreading phenomenon". This means that minute amounts of other chemicals, which previously did not cause difficulty, now cause symptoms whenever they are accidentally exposed.

I have conducted a number of tests on the teachers and youngsters. They have definite changes in their immune systems compatible with neurotoxic damage. In addition, many of them have problems with nerve conduction, which is the time it takes an impulse to go to the brain and return to the skin to tell someone that they have touched something, for example, that is harmful.

The youngsters and teachers who have peripheral nerve damage frequently have numbness and tingling in their arms, hands, and face. They have problems remembering previous material that they knew or learning new material. Many of them have become emotionally labile. They cry or become extremely irritated, angry, and aggressive without reason. Many have headaches, burning in their throat, vomiting, leg aches, muscle aches, and joint pain. Some have proven changes in their muscles.

In addition, there is definite proof that many of these patients have formed antibodies against their own tissues. For example, some of the patients have antibodies now against the fat or the myelin that coats the nerves. This is due to the fact that toxic chemicals such as those found in carpets or pesticides, for example, are stored in fat tissue in the brain, in the covering of nerves, or in breast tissue.

Some have changes in their muscles and a few have been examined and found to have neurotoxic changes in their brains (We have previously sent you copies of brain imaging that has been done on some of these patients).

If the blood of the individuals who had symptoms from exposure to the carpet could be examined within 10 days of the time when they were exposed to the carpet, it was possible in some to find evidence in the blood of the types of chemicals that are used in synthetic carpets or their installation adhesive.

Some of the children and teachers from these schools in upper New York State have been tested with an allergy extract made from the air in the school which was contaminated. Others have been checked with an allergy extract made from the school carpeting. Enclosed is a videotape clearly demonstrating that the symptoms of which the patients complained can be readily reproduced when they are tested single-blindly by placing a drop of the school air allergy extract or the carpet allergy extract in their arm or under their tongue.

If a child complains of extreme fatigue, for example, so that the child goes home and lays on the floor rather than going outside to play ball, this is the kind of symptom we can reproduce merely by skin testing the child with the school air and/or the school carpet. Based on the above data, it is my conclusion that exposure to carpets which contain chemicals and carpet adhesives can definitely result in neurotoxic damage in some children and adults. We do not at this time know the scope of this problem but it is imperative to ascertain this as soon as possible.

of two teachers and one child who have had SPECT tests (brain imaging), for example, there are definite changes in both the blood flow to the brain and the function of the brain. This can be readily visualized by looking at the brain images of these patients. Symptoms were reproduced by merely injecting a drop of the school air or school carpet allergy extract into the arm just prior to the brain imaging technique. We have already provided you with copies that demonstrate the changes in one patient, compared to a control.

At this point, these patients need detoxing. Although their symptoms have diminished since they are no longer exposed, they continue to have problems when they are accidentally exposed to a wide range of chemicals. Many of them are not entirely back to the state that they were in prior to the carpet exposure. At the present time, we simply do not know whether the obvious changes in their brains and peripheral nerve function will return to normal after detoxification. Some of the teachers, in spite of no exposure at this time to the original chemicals, continue to have definite symptoms.

Based on the above, it is my conclusion that exposure to synthetic carpets which contain chemicals or the adhesives that are used in laying down the carpets can result in serious and possibly permanent damage to some children and teachers. This problem is ubiquitous, as I see patients from all over the United States who have similar problems.

In one school alone, it is obvious that at least 30% of the youngsters and teachers have been adversely affected, some of them very seriously. In one school, first graders who were exposed to a printing press, for example, knew their alphabet when they entered school but could not say the alphabet by December.

I strongly urge the members of Congress to continue to support research to investigate this most challenging and potentially harmful problem. The brains of the future generation should not be in jeopardy.

The bottom line is not what happens to a mouse but what happens to a human being. The studies with mice should obviously be conducted in such a way that each individual component of the synthetic carpeting is checked separately. In this way, you might be able to pinpoint more exactly the specific chemical which is causing difficulty.

If my patients or I could be of any help in relation to this, we would be pleased to meet with you. This problem is extremely serious. It is imperative that answers be found as soon as possible and that these children and adults receive appropriate treatment so that they have a better chance of returning to normal health. We must not continue to jeopardize the health of future generations with toxic chemicals which adversely affect the central nervous system.

Most sincerely,

Doris J. Rapp, M.D.

Doris J. Rapp, M.D.  
FAAEM, FAAAA, FAAP  
Clin. Asst. Prof. of Ped.  
at S.U.N.Y.A.B.

DJR:cp

*Pine Bluff Allergy Clinic, P.A.*

AUBREY M. WORRELL JR. MD  
American Board of  
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3900 Hickory Street  
PINE BLUFF, ARKANSAS 71603

ALLERGY-IMMUNOLOGY  
Pediatric and Adult  
(501) 535-8200

June 4, 1993

Mr. Anthony Pollina  
Congressional Aide for  
Congressman Bernard Sanders  
1 Church Street  
Burlington, VT 05401

Dear Congressman Sanders:

For several years, I have been very concerned about the effect of chemicals in new carpets and the effect upon my patient's health. I have been dealing with the Chemical Sensitivity problem now for about 15 years. One of the major things that my patients complain of, who have allergic sensitivity problems, would be inability to tolerate various chemicals, including new carpets, new drapes and other items in the home which have a chemical odor.

One of my patients is a 52 year old RN with a Ph.D in Nursing who acts as a consultant, teacher and practicing nurse.

In November of 1988, she had a new carpet placed in her home and a strong odor was noted. It contained anti-stain chemicals, formaldehyde and other chemicals in the rug. Within 6 weeks, by December of 1988, she began to develop various illnesses. By the Summer of 1989 she had severe fatigue, shortness of breath, insomnia, gastrointestinal pains and developed a chronic illness. In May of 1988, while on vacation for 3 weeks, she noticed that her symptoms were much better. On return home, it was noticed that there was a bad odor in her house. She continually became ill and by the Fall of 1989, she had to lie down or to sleep 18 to 20 hours daily and had to curtail her activities. Her last date to work was December 06, 1989.

She has continually been ill since that time with the Multiple Chemical Sensitivity Syndrome and lives out in a field in the Ozark Mountains in an old converted bus. Only in this way can she stay away from the chemicals of everyday life which causes her extreme symptoms and total disability. It was my opinion that she became ill because of exposures to chemicals in her new carpet in November of 1988 - 1989. With the continued exposure, she became chemically sensitive to other chemicals in her environment causing the multiple Chemical Sensitivity Syndrome, chronic illness and total disability. She is now totally disabled and probably will be

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RE: Sandra Rush, Ph.D

June 04, 1993

so for the remainder of her life.

This is just one case of the development of chemical sensitivity and total disability, secondary to chemical exposures in the home caused by new carpets. I have multiple other patients, who are not totally disabled, who cannot tolerate the chemical odors coming from carpets. Of course, many people can tolerate new carpets, but there is a segment of our population which cannot tolerate and withstand the continuous low grade chemical exposures coming from new carpets and they become chemically sensitive and totally disabled.

The carpet industries assurance that their levels of chemicals emitted from the carpets are safe is most likely true for many people, but certainly it is not true for those people who are susceptible for various reasons to becoming ill with exposure to low levels of carpet chemical emissions. Most likely, many of the carpets exceed this low level of chemical emissions, due to the strong odor of chemicals that you can note in a home in which new carpets have been placed. There are multiple chemicals in the carpets which can cause a patient to become ill. Even with a small percentage of patients reacting to chemicals in the carpets, this would lead to probably thousands of patients throughout America who would become ill, due to these exposures.

One of the real disturbing things which I am seeing in my practice is that more children are developing chemical sensitivity problems due to the onslaught of many different types of chemicals to which they are exposed with most of them having problems with exposures to chemicals in carpets in their home. Once this multiple chemical sensitivity problem occurs, these children are chronically ill and most likely will remain so for years and possibly for their lifetime.

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Re: Sandra Rush, Ph.D.

June 04, 1993

It is my very strong opinion that the carpet industry be regulated in some way in which the individuals in our country can be guaranteed that they will not be exposed to these very harmful chemicals which can cause them a lifetime of illness. I strongly support Congressman Bernard Sanders stand on these issues and would be glad to help in any way that I can.

Sincerely,



AUBREY M. WORRELL, JR., M.D.  
Pine Bluff Allergy Clinic, P.A.

AMW:mb

Name: Aubrey M. Worrell, Jr., M.D., 3900 Hickory, Pine Bluff, AR 71603

CURRENT CURRICULUM VITAE WITH LISTS OF MEMBERSHIPS, MEDICAL SOCIETIES AND HOSPITAL STAFFS:

- A: Graduate - Ouachita Baptist University - BS Degree - May 26, 1958
- B: Graduate, M.D. Degree, University of Arkansas School of Medicine, July 10, 1958
- C: Received license from Arkansas State Medical Board, No. C-3137, on August 4, 1962
- D: Rotating Internship at Arkansas Baptist Hospital, Little Rock, AR July 1, 1962 to June 30, 1963.
- E: Resident in Pediatrics, Wilford Hall, U.S.A.F. Hospital, Lackland Air Force Base, Texas, July 1, 1965 to June 30, 1967
- F: Resident in Pediatric Allergy, Wilford Hall, U.S.A.F. Hospital, Lackland Air Force Base, Texas, July 1, 1969 to December 30, 1970
- G: Certificate of Training in Clinical Ecology, Society for Clinical Ecology, AAEM, Pengree Park, Col. May 1980
- H: Certificate of Training in Orthomolecular Medicine, Huxley Institute of Biosocial Research, New York, New York, December, 1983
- I: Certified by the American Board of Pediatrics, Certificate No. 13173, September 28, 1969
- J: Certified by the sub-board of Pediatric Allergy of The American Board of Pediatrics, Certificate No. 363, February 11, 1972
- K: Certified by the American Board of Allergy and Immunology, a conjoint board of American Board of Internal Medicine and American Board of Pediatrics, Certificate No. 470, November 12, 1972
- L: Certified by the American Board of Environmental Medicine, Certificate No. 011, October 15, 1988

MEMBERSHIP IN THE FOLLOWING ORGANIZATIONS:

- A: Jefferson County Medical Society, Jefferson County, Arkansas
- B: Arkansas State Medical Society
- C: Arkansas Pediatrics Society
- D: Arkansas Allergy Society
- E: American Academy of Pediatrics
- F: American Academy of Allergy and Immunology - Fellow
- G: American Academy of Environmental Medicine - Fellow
- H: International Academy of Nutrition and Preventive Medicine

I am an Assistant Clinical Professor of Pediatrics, University of Arkansas for Medical Sciences, College of Medicine, Little Rock, AR

President - American Academy of Environmental Medicine - 1990

Chairman - Continuing Medical Education Committee - AAEM - 1991-

Board of Trustees - Baptist Memorial Health Care System, Inc., Memphis, TN

Private practice of Allergy-Immunology in Pine Bluff, Arkansas since 1973. Additional practice of Environmental Medicine since 1980, and Nutritional Biochemistry since 1984.

CONTROL THE ENVIRONMENT



## Environmental Health Center — Dallas

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**William J. Rea, M.D.** June 8, 1993

Thoracic and Cardiovascular  
Anesthesiologist and General Surgeon  
First World Professor Chair in  
Environmental Medicine  
Robens Institute,  
University of Surrey, England

**Attention: Anthony Pollina**  
**Alfred R. Johnson, D.O.** Congressman Bernard Sanders  
F.A.A.E.M., D.I.B.E.M.  
Internal Medicine  
Office of Congress  
Allergy and Environmental Medicine  
1 Church Street  
Burlington, Vermont

Gerald H. Ross, M.D.  
C.C.F.P., D.I.B.E.M.  
F.A.A.E.M.  
Family Practice  
Environmental Medicine  
**Dear Congressman Sanders:**

Ervin J. Fenyes, Ph.D.  
Environmental Science

Bertie Griffins, Ph.D.  
Immunology  
Microbiology  
Carolyn Gormen, M.A.  
Health Educator

David W. Holmes, Ph.D.

Autism  
EEG

My colleagues and I had seen over 20,000 chemically sensitive patients over the last 20 years. Many of these patients have been made ill by the fumes emanating from new carpet—some from the carpet glue, some from the dyes and fixatives. In addition, we have seen several families who all suddenly became intolerant of their homes when new carpet was installed. Some even had the carpet removed and replaced with others only to find they were intolerant of the second one.

Nutrition

Teena Petree, B.S.P.T. We also have observed some small children who were made ill from crawling on the new carpet.

David Tarte, L.Ac.

Acupuncture  
**I hope you can convince the carpet industry to design less toxic carpet.**

Very truly yours,

William J. Rea, M.D.

WJR/em

UNIVERSITY OF WASHINGTON  
SEATTLE, WASHINGTON 98195

School of Medicine  
Department of Medicine  
Division of Pulmonary & Critical Care Medicine  
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Telephone: (206) 543-3166  
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February 16, 1993

Anthony Pollina, State Director  
191 Bank Street  
Burlington, VT 05401-3845

## RE: Carpet Associated Lung Disease

Dear State Director Pollina,

Thank you for sending me copies of some medical records regarding Priscilla Starks. Since it has been a while since our last communication, I suspect that Ms. Stark's pulmonary problems have been clarified and resolved. It seems clear to me that based on the information you had provided me, Ms. Stark's pneumonitis could have indeed been caused by an environmental agent. However, since there are several interstitial lung diseases whose clinical manifestations are similar, the cause and effect of an apparent environmental agent (especially if the environmental agent has not been hitherto attributed to cause hypersensitivity pneumonitis/interstitial lung disease) need to be carefully delineated and clarified.

With reference to Mrs. Beverly Shutt's case, the diagnosis of hypersensitivity pneumonitis is confirmed. Having very carefully eliminated other factors known to cause hypersensitivity pneumonitis, it is my opinion that some change in her domestic environment contributed to her pulmonary problem. The history of change of carpets in her domestic environment was quite striking and was elicited several months before Mrs. Shutt had become aware of 'carpet associated illness'. Subsequently, Anderson Laboratories (Massachusetts) has demonstrated adverse physical effects in mice exposed to Mrs. Shutt's carpet. In addition, in corroboration with Dr. Rosalind Anderson (Anderson Lab), we have conducted another set of experiments in another batch of mice exposed to Mrs. Shutt's carpet. In this pilot study, we have analyzed the cellular details in the lungs of mice exposed to Mrs. Shutt's carpet. The preliminary results reveal structural changes similar to Mrs. Shutt's lungs. It must be emphasized that these findings need to be confirmed in additional experiments and the apparent-causative factor/component in the 'carpet-air' is not known. To date there has been no scientific publication to link synthetic carpet components to interstitial lung disease/pulmonary fibrosis to my knowledge. I am intrigued of the possibility and wish to pursue studies in a scientific manner to clarify this potentially serious issue.

Thank you for your interest. Please contact me if you need any further clarification or assistance in this matter.

Sincerely,

*Ganesh Raghu, M.D.*

Ganesh Raghu, M.D.  
Associate Professor of Medicine  
Chief, Chest Clinic  
Medical Director, Lung Transplant Program

c: Rosalind Anderson, Ph.D.

Testimony by Priscilla Sparks, former carpet mill worker,  
before Congressman Bernard Sanders -- Ellijay, GA. April 5, 1993

Sparks: .

I started to get sick in November of 1991 with flue symptoms and I was going to the hospital and I was on antibiotics. It didn't seem to help any. I just grew worse. But I noticed that the schedule I worked, from Monday to Wednesday a 12-hour shift through the night from 7 p.m. to 7 a.m., then on Thursday night I only worked six hours, and I was out the whole weekend. I noticed that whenever I came home on Thursday night, that I was extremely sick and went straight to bed and on Friday I was laying around the house and couldn't get up. On Saturday I got a little bit better, on Sunday I was a little better, by Monday I was doing fine. This went on up until after Christmas.

The last night I worked was January 21, and I was running a high fever, I had a lot of shortness of breath, a lot of chest pains, muscle cramps. And I actually collapsed inside the plant. I was laying down actually and my fever was real high. I had gone back into another part of the plant to lay down to rest. I'd actually only been on the job for, like, two hours. And I'd been out the night before that and went back to the doctor. From January 21, 1992 until now, I got worse. I was hospitalized on the 23d of January. I was told that I had double pneumonia. It was a type of pneumonia that the doctors hadn't seen or come in contact with in our town. They weren't real familiar with it. I was in the hospital for two-and-a-half-weeks. I was in for 10 days and I went home for 24 hours and was back in the hospital for another week.

The medications that I was on didn't seem to really help. I went on antibiotics in high doses and I was on oxygen. So a pulmonary specialist from Marietta (GA) was called in, Dr. Gillette and they switched me to steroids on the medication and I began to get better. We discussed where I worked -- the doctor was confused because he didn't see this on an everyday basis -- as to what I had actually come in contact with. I was asked if I had been out of the country. I said 'no.' So they turned my attention to my job. I said I worked in the carpet mill like everybody else, no big deal. They asked me if I came in contact with chemicals. I said, 'I'm sure I do.' I wasn't sure what kind of chemicals. I had been told there were chemicals there. But I didn't figure they were harmful to anybody. And when I was hired-in, I was not told that there were any hazardous chemicals that I worked with in the mill. I was not told what precautions to take to protect me from the chemicals. But during my illness, I had learned a lot about the chemicals. I now read the labels that were on the barrels; I now know that we did not have proper ventilation in the mill, but I did not know that that was required.

-- 2 --

This was in the winter months and we had no ventilation fans going. We didn't have any heat on our shift; many nights we didn't have any heat, and it was a problem just working in the cold. We wore extra clothing; we shut up every back door we could find. The chemicals, we were right there in them with actually no ventilation at that point. You don't have windows in a carpet mill. It's something they don't have.... You're supposed to have ventilation fans. Not only myself, there were others who were sick, during the time I was sick.

The way the company treated me after my illness -- I was told that I had a chronic lung disease due to chemicals, like an occupational disease, because I know beyond a doubt that I was not sick before -- it's been a constant battle. I feel for the people in the carpet business, the employees. They're not protected in any way, all the people that I've spoken to in the last few months. They're not told to wear special clothing, gloves, masks or goggles, nothing. Most of them say, 'yeah, I work with chemicals but I've never been told what they are.' The employees are totally in the blind here.

W.D. SCHNEIDER, M.D.

EAST TOWNE CENTER CLINIC

222 EAST TOWNE CENTER  
EAST ELLIJAY, GEORGIA 30539

PHONE 635 4800

BNOD AS 3144994  
GA LICENSE 13428Name Triscilla StarksAddress Ellijay Date 3/12/92

**B** This 32 yr old W/F has been having lung and breathing problems very possibly related to Chemicals she has been exposed to at Company where she has worked — See labels explaining the dangers involved in breathing these Chemicals.

Generic Substitution permitted She was treated on M.D.Dispense as written 1-20-92 for Symptoms M.D.

LABEL — YES — NO — NR REFILL 1—2—3—4—5—PRN

*Contd.*

W.D. SCHNEIDER, M.D.

EAST TOWNE CENTER CLINIC

PHONE 635 4800

BNOD AS 3144994  
GA LICENSE 13428Name Triscilla StarksAddress Ellijay Date 3-12-92

**B** of the Intestinal flu Syndrome & Nausea & Vomiting and severe Asthma — was given 2 days off for Bed rest; however, instead of improving — she ended up in the Hospital w/ Osteomyelitis and lung disease aggravated by fumes of Chemicals. She had been breathing.

Generic Substitution permitted W.D. Schneider M.D.Dispense as written W.D. Schneider M.D.

LABEL — YES — NO — NR REFILL 1—2—3—4—5—PRN

July 8, 1993

Honorable Bernard Sanders  
1 Church Street  
Burlington, Vermont 05401

Dear Congressman Sanders;

If it is possible I would like my statement to be entered into the information gathered at the Congressional Hearing held June 11 and chaired by Congressman Synar of Oklahoma.

On April 19, 1991 we installed wall to wall du Pont Stain Master carpeting in our home at 8401 Hawthorn Drive, Yakima, Washington. I became ill from the first day it was installed. During all of 1991 my pulmonary function decreased dramatically. Twice I was rushed to the Emergency Room because of lack of oxygen. Finally, I became so ill I was admitted to the University of Washington Medical Center in Seattle, Washington. Dr. Ganesh Raghu, Pulmonary Diagnostic and Critical Care, admitted me as a serious ill patient. I underwent two open chest surgeries and biopsies were taken plus removal of lung tissue. After seven weeks in Critical Care and one week in Intensive Care I was dismissed. The diagnosis of my condition is Pneumonitis, a severe lung disease caused by "unknown foreign chemicals."

After my hospitalization I returned home and continued to be ill. In September of 1992 I learned of the toxic carpet syndrome and Dr. Raghu was able to put some of the pieces together. I believe he is still testing with lab mice and my lung tissue. I also believe that he has now seen other patients with similar symptoms as mine.

As of this writing I am on pain medication for life. I must keep oxygen with me where ever I go. In brief I went from a healthy, happy woman to a pulmonary cripple because of new carpet chemicals. I also suffer from neurological damage; eye problems, sleeplessness, depression, muscle aches and constant fatigue.

I plead with Congress to hear the voices of so many of us whose life's have been forever damaged. Please also consider what is happening to our children.

Thank you for listening to my story.

Beverly Shutt

Beverly Shutt  
945 Lanai Loop  
Seal Rock, Oregon 97376



## OREGON HEALTH SCIENCES UNIVERSITY

3181 S.W. Sam Jackson Park Road, Portland, Oregon 97201-3098, L352  
(503) 494-8257, Fax (503) 494-4981

*Department of Public Health and Preventive Medicine*

June 28, 1993

Congressman, Bernard Sanders  
One Church Street  
Burlington, VT 05401

Dear Congressman Sanders,

One of my patients, Geinini Cameron of Salem, has asked that I write you and tell how the unprotected exposure to the new carpet fumes in the spring of 1992 caused her to experience respiratory and neurologic symptoms typical of those described for the effects of the 4-phenyl cyclohexene. Her symptoms were persistent and disabling, and a disputed Workers Compensation claim is still pending. During the last several years I have had several other patients with similar exposures and similar effects, so that this is a significant problem. My patients and their employers were never warned that exposures to these new carpet fumes could cause these symptoms, which would seem to be a wise requirement.

Sincerely,

A handwritten signature in cursive ink that appears to read "Wm. E. Morton".

Wm. E. Morton, MD, Dr. PH  
Occupational Health Clinic

cc. G Cameron

June 10, 1993

The Honorable Bernie Sanders  
Attention: Anthony Polina  
213 Cannon House Office Building  
Washington, DC 20515-4501

re: Subcommittee on Energy and the Environment Hearings on Carpets

Dear Senator Sanders:

I understand that this committee is hearing testimony regarding the safety of carpeting. I wish to enter some comments for the record and consideration this committee.

I represent a group of approximately 1000 people, concentrated in California, that have Multiple Chemical Sensitivity (MCS). People with MCS can have severe to life threatening reactions from carpeting. Many of these people can trace their initial illness to an office or home where new carpet was installed. Our members report having severe neurological, immunological, and endocrine system problems after exposures to carpeting. I am also disabled by MCS and I find that an exposure to some carpeting, in only a few minutes, will trigger seizures and asthma.

S.B. latex seems to be the most prevalent component in carpets and is a documented by N.I.O.H.S. as a sensitizing agent. The data from manufacturers has been missing, incomplete, or only studying one aspect of toxicity, such as cancer risk. No definitive studies have yet been done to detect neruotoxicity or immunological problems. You have probably seen Dr. Anderson's chamber testing of carpet samples with mice. In a very short time these mice exhibited respiratory and neurological changes. Upon re-exposure the mice, who were now sensitized, required less time to suffer ill effects and then some died.

Many of our members have become disabled because of their exposures to carpeting and we have found that carpeting is considered the most formidable barrier in their ability to return to work. Many will never be able to return to the workplace because of



ENVIRONMENTAL HEALTH NETWORK

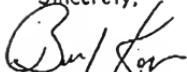
P.O. Box 1155 • Larkspur, CA 9497  
(415)541-507

they are now sensitized to many of the chemicals in carpeting. Our organization receives thousands of requests for information regarding the toxicity of carpeting and how to live with it. Some examples are: What can they do to live with it, because they are renting. How can they tell their boss that the carpeting is making them sick. What kind of air filter can they use to reduce their exposure to the emissions, etc.

The Americans with Disabilities Act (A.D.A.) mandates that reasonable accommodations be made to allow workers with disabilities to return to the workplace. MCS is recognized as a disability by H.U.D. and the Social Security Administration. It would be wise for this committee to investigate the dangers and architectural barriers that carpeting presents to those disabled by MCS and other diseases like asthma and RAD.

Additionally, I would like to point out to the committee that the Consumer Product Safety Division has received requests from 26 State Attorney Generals to put warning labels on carpeting because of the number of complaints that they receive regarding ill health effects. I trust this committee will recommend that the carpet industry be given an incentive to work toward producing safer products, though I believe a regulatory agency's enforcement powers will be required to protect the public's safety.

Sincerely,



Barry Karr  
Board President



ENVIRONMENTAL HEALTH NETWORK

P.O. Box 1155 • Larkspur, CA 9497  
(415) 541-507

Written Testimony of Glenn and Sharon Beebe  
P.O. Box 39344, Cincinnati, OH 45239

"Potential Health Risk from Carpets and Carpeting Materials"

We would like to thank the House Subcommittee on Environment, Energy and National Resources for the opportunity to add our written testimony into the record of June 11, 1993.

We request that our entire written testimony, including the attachments, be entered into the record. Also, at this time we would like to thank the Chairman and members of the Ad Hoc Subcommittee for its efforts in addressing the "Potential Health Risks from Carpets and Carpeting Materials".

**WE QUESTION THE BROCHURES AND THE GREEN CARPET LABEL**

In 1980 there were no Warning Labels, Brochures to read or Guidelines to follow on IAQ installation of new carpet. However, if the guidelines existed we did meet the responsibility by following the procedures listed below:

- (1). Make sure a professional installer is chosen who follows the installation guidelines.
- (2). Open windows and doors, for an adequate supply of fresh air.
- (3). Consider using window fans, room air conditioning units, or other means to exhaust emissions to the outdoors.
- (4). Consider leaving the premises during and immediately after carpet installation.
- (5). Contact your carpet retailer if objectionable odors persist.
- (6). Be sure the ventilation system is in proper working order.
- (7). If you consider yourself to be unusually sensitive: you may wish to avoid the area or leave the premises while the carpet is being installed.

In 1980 we followed the 1992 Brochures Guidelines listed on page one and reference the numbers throughout our story.

#### OUR STORY OF TOXIC CARPET

May 1980, we had just finished an addition to our existing business building. Several months after its completion, we had seventy-nine square yards of commercial carpeting installed in our new office area. The carpet was not glued to the floor; it was fastened with tack strips over rubber padding on concrete flooring. (1)

The very first day of installation and for nine months thereafter, the carpet had a pungent odor. This odor was different from previous new carpeting we purchased throughout the years. Usually within four or five weeks after installation, the outgassing of new carpeting will diminish. Prior to our carpet installation, there was no evidence of in-door pollution.

Within a short time, we found spiders dead in a standing position (dead spiders are usually found in a curled up position) on the carpeted floors. However, in the adjoining office with tile flooring there were still live spiders. Other than the persistent odor, this was the only warning we had at that time. (7)

From May until July, the family worked in other areas of our business building and seldom came into the carpeted rooms. We were in excellent health with no known allergies. (4)

During the month of August, the family was spending more time in the air-conditioned carpeted office area. We began having difficulty concentrating while there and noticed that our daughter was making an unusual amount of typing errors. We were using Chap Stick often because our lips became chapped and irritated; they felt puffy and had a burning sensation. We opened the windows thinking it was just stale office air, although no one smoked inside the building. (3)

During September we began to experience frequent headaches and nausea, and Sharon also began to make an abnormal amount of typing errors. Very shortly after leaving the office, either at lunch time or at the end of the day, the headaches disappeared. Soon after this, we experienced burning of the eyes, nose, and sinus cavities, and we simply could not drink enough water to satiate our dry mouths. Stepping outside for a breath of fresh air became routine during working hours. During this month, we turned off the air-conditioning and opened the windows. Our symptoms

seemed to come and go. When we spent time at home on the weekends, we always felt better. Within three to four hours after we re-entered the office area, our symptoms recurred and work productivity decreased. (2) (3) (4)

On September 30, 1980, we purchased three healthy, large-leaved plants for our carpeted office. Within two days of the purchase the leaves of the Janet Craig plant turned completely black. The leaf tips of the schefflera and flag plant turned black overnight and were damaged near the lower half. There were no insecticides or chemicals sprayed in the office area prior to or after the new carpet was installed. (2) (3) (7)

We kept the windows open during The Fall and Winter months to circulate the air, but we still felt fatigued. This feeling of fatigue did not compare to exhaustion from hard work or staying out late. We were sleeping beyond our usual six to eight hours. Our thinking and speaking were incoherent, and depression set in. Sharon began having a shortness of breath, blurred vision, numbness and tingling in her face, and suffered with a severe sore throat. Occasionally she experienced itchy skin. I did not have all of these symptoms because I was not in the new office area as frequently as Sharon. When Sharon passed through the carpeted rooms, she could actually taste the badly polluted air. (2) (3)

Since we only experienced the majority of our health problems while in the office and not at home, we finally realized that our health problems were induced by our new office environment. During the weeks that followed, our symptoms became persistent and we could not alleviate them; therefore, we sought help from the carpet retailer, the Board of Health, and the Accident Prevention Control Agency. etc. One referral lead to another, but no solutions were found and the confusion continued. (2) (3) (4) (5)

Our heating and air-conditioning technician found no malfunctions in our electric furnaces and heat pumps, which he installed separately in the office and shop area. The Board of Health contacted the carpet retailer, who then sent a representative from a carpet service to inspect the carpet. After a short, walk-through survey, he claimed to find nothing. Later, we discovered that he was not qualified to perform any kind of testing and worked only for the carpet distributors. (2) (5) (6)

Meanwhile, we attempted to alleviate the problems, we shampooed the carpet three times with water at 140 degrees. While the carpet was wet, the fume emissions subsided. Within two days, the fumes returned with the same pungent odor, and our symptoms continued to persist. Later we discovered that shampooing the carpet would not help because most of the chemicals involved were not water soluble.

The months of illness and business interruption caused our work performance to be at a reduced level. Shampooing the carpet had not helped and neither had constant ventilation. Therefore, in January 1981, we removed the toxic carpet and the air quality began to improve immediately. (2) (3) (4)

We stored the poisonous carpet in the old section of the building. After two days, our ailments recurred while in that section, and we realized that we had merely transferred the culprit to another area. We wrapped the rolls of toxic carpet in plastic and sealed them with duct tape. Again, the unusual pungent odor disappeared.

In 1981, we contacted a private testing firm and they concluded that the carpet had outgassed toxic chemicals, which had saturated the walls, ceilings, and floors. (See Affidavit of Kenneth Reed Attached)

After the toxic carpet was replaced with safe carpeting and the building was decontaminated, our health problems subsided within the office. However, whether at home, shopping, or in the office, we were being debilitated by certain chemicals in other products that had been tolerated before the toxic exposure.

During the nine months exposure to the toxic carpet, we developed a malady known as Multiple Chemical Sensitivity (MCS), which is becoming increasingly common. It is an illness involving intolerance of many chemicals found in the everyday environment. At times we reacted to even trace amounts of chemicals to which we had become sensitized. (See Affidavit of Theron Randolph, M.D. attached).

#### SYMPTOMS

The symptoms and severity differed with each member of our family according to the duration of exposure. We had many physical problems, including headaches, respiratory problems, muscle and joint pain, weakness, fatigue, irritation of the throat, burning of the nose and eyes, inability to concentrate, affected nervous systems, jerking in our sleep, elevated blood pressure, chest pains, and sensitivity to light. Glenn developed an acute sense of smell and Sharon developed numbness, prickling, and tingling in her face.

We developed a hypersensitivity to other airborne chemicals and the ingredients in certain products, toxins which offgas, which were once tolerated, such as tobacco smoke, diesel exhaust, perfumes, some new clothing, laundry detergents and fabric softeners, newspaper print, plastics, leather goods, new rubber tires, etc. Since most of these agents were part of our everyday lives, this sensitivity became quite exasperating. Our bodies had been overburdened by the continuous, cumulative, offending chemicals which had outgassed from the toxic carpet. We were suffering severely and could barely function in our business and personal lives.

We planned for almost any type of mishap or illness and even planned for semi-retirement in 1995. The majority of married people, at some time, must think about the possibility of their partner becoming disabled, but seldom are both husband and wife disabled simultaneously.

We had always maintained a safe environment for our family at home and at work. We had not imagined that a chemical exposure in 1980 would decrease our earning potential and change our lives so drastically during 1983.

After trying for two years to hold on, we eventually had no choice but to lease or sell the building. In late spring of 1983, the business property was signed over to the new owner. Our family was deeply saddened and frustrated when we witnessed 12 years of progress lost by the stroke of a pen.

For further details of our story please refer to TOXIC CARPET III by Glenn Beebe. It details the events leading up to and following the installation of a toxic carpet in our business establishment. This work illustrates, through several personal incidents, the aspects of everyday life such as shopping, cleaning, traveling, etc. that individuals, who are not chemical sensitive, take for granted. Presently we are partially disabled and permanent in nature. We endured this tragedy and made it into a learning experience.

For the past 13 years we have been involved in this toxic carpet issue and working with the policy makers and the general public. (See copy of letter from Vice-President Al Gore attached). In our opinion, defective carpet is likely one of the major contributors to indoor air pollutants. We have compiled hundreds of complaints from people suffering from symptoms similar to ours and have documented cases as far back as 1975 from the USCPSC. Even though it has been a great financial burden to us, we will continue to exchange and publish the information we gather. We will continue to extend our sympathy to victims poisoned by toxic chemicals.

WE QUESTION THE BROCHURES AND THE GREEN CARPET LABEL  
BROCHURES

There are many questions concerning the brochures mailed out. "Indoor Air Quality and New Carpeting: What You Should Know," from the U.S. Consumer Product Safety Commission. Also a brochure "A Guide To Carpet and Your Indoor Environment" and the "Indoor Air Quality Program for Carpet" from the Carpet and Rug Institute (CRI).

After reviewing the brochures, and our experience with toxic carpet we feel there may be false or misleading statements contained in the advertising materials and wish to have the U.S. Federal Trade Commission or those who are empowered to investigate and make the changes.

GREEN CARPET LABEL

A green label issued by CRI to carpet manufacturers when their carpet passes certain tests. The testing is done on one square yard per year for each type made by approximately 175 carpet makers. Many industrial hygienists are wary of the "Green Tag." The tests are not reviewed and CRI set the standards.

As one Ph.D. put it "The Carpet and Rug Institute has initiated a procedure of "testing" and attaching a Green Label." There are no peer reviewed standards for this "Certification." While it is a step in the right direction, it falls short of a quality "Control." The person buying the carpet is still at risk".

CONCLUSION

There is one important Guideline missing from the Brochures. If you continue to have health problems, have the carpet tested or have it removed.

Thank You, Mr. Chairman

We can be contacted by writing: Glenn or Sharon Beebe  
P.O. Box 39344  
Cincinnati, OH 45239  
(513) 385-1111

1/29/86

COURT OF COMMON PLEAS  
HAMILTON COUNTY, OHIO

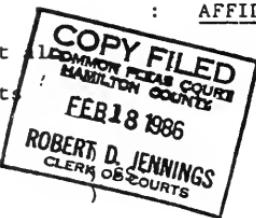
GLENN BEEBE, et al. : Case No. A8103037

Plaintiffs :

vs. : AFFIDAVIT OF KENNETH PAUL REED

JOSEPH E. PERIN, et al.

Defendants

STATE OF  
COUNTY OF HAMILTON

Kenneth Paul Reed, being first duly sworn, deposes and states as follows:

1. I received my B.A. in chemistry from Villa Madonna College in 1957.

2. I received my masters degree in chemistry from Xavier University in 1959.

3. I received a Ph.D. in analytical chemistry from Louisiana State University in 1968.

4. I taught chemistry at Thomas More College in Northern Kentucky for 19 years and was department chairman for part of that time.

5. I have had training from NIOSH in industrial hygiene and have worked as an industrial hygienist as well as a chemist since 1978.

6. I have had training from Vanderbilt University in hazardous materials; that is, the handling of hazardous materials as well as the toxicology or the effect of hazardous materials on the human body.

7. My emphasis in industrial hygiene has been hazardous materials and toxicology.

8. By toxicology, I mean the study of toxic chemicals and their effects on human beings.

9. I have had training from the Cabinet of Labor, Commonwealth of Kentucky, in occupational safety and health, which included further industrial hygiene study.

10. Industrial hygiene is the recognition, study of, and evaluation of health hazards in the work place and their controls. This would include the science of measuring and analyzing toxic substances.

11. I am presently an owner and founder of Northern Kentucky Environmental Services.

12. As a part of my work, I examine, evaluate, and recommend changes to eliminate health hazards with respect to toxic chemicals.

13. For example, I am doing studies at Fernald to determine the nature of the stack emissions of hazardous chemicals and their effects on the workers and other individuals nearby.

14. As another example, I am assisting the contractor at Chem-Dyne in maintaining health standards for workers at that site to insure they are not exposed to high levels of toxic chemicals.

15. As a part of my work in industrial hygiene, and as a result of my studies in this area, I am aware of the effects on the human body which toxic chemicals have.

2.

16. I am also familiar with government publications which deal with toxicology and levels of safe exposure to hazardous chemicals.

17. As an industrial hygienist, I have written training manuals for NIOSH which are used to train personnel in industrial hygiene.

18. I first inspected the premises of Glenn and Sharon Beebe in March of 1981.

19. I took various samples of their place of business and also sampled various pieces of the Burlington carpeting which they had purchased from the defendant, Pat & Joe's.

20. I have found evidence that the carpeting contained various chemicals, including formaldehyde, toluene, methacrylic acid, probably oleylamine polyacrylic acid fragments, ammonia, ethyl benzene and styrene (hereinafter referred to collectively as "certain chemicals"). All of these "certain chemicals" are toxic and hazardous chemicals.

21. As a result of my training, I am aware that all of these "certain chemicals" are sensitizers; that is, they are capable of creating an adverse physiological response to the human body.

22. As a result of my training, I am aware that all of these "certain chemicals" can cause headaches, irritation to the eyes, nose and throat, dizziness, fatigue, disorientation, as well as burning of the tongue.

23. The effect on the body of these chemicals is additive; that is, the exposure that a person gets is the sum of the individual concentrations of the chemicals as opposed to each individual chemical taken separately.

3.

24. Based upon my training, as well as based upon the testing which I did for the Beebes, it is my opinion, based upon reasonable chemical certainty, that individuals who walked on and were in close proximity to the Burlington carpeting which was purchased by the Beebes would have been exposed to the "certain chemicals" named above which emitted from the Burlington carpet.

25. It is my opinion, that exposure to the "certain chemicals" can result in sensitization to amine and amine derivititives; and to acrylic oligimers and polymers; and to irritants such as formaldehyde.

26. As explained at the bottom of page 2 of my errata sheet attached to my deposition, it is my opinion, based upon reasonable chemical certainty, that when the carpet was first installed, individuals who were walking on and in close proximity to the carpet were exposed to high concentrations of various chemicals, including the "certain chemicals" named above.

27. It is further my opinion, based upon reasonable chemical certainty, that individuals who were walking on and in close proximity to the Burlington carpeting when it was first installed received massive doses of these chemicals, certainly in far excess of their combined TLV 8 hour TWA average.

4.

28. It is my opinion, that the Burlington carpet at the time that it was purchased from Pat & Joe's by Glenn and Sharon Beebe was unreasonably dangerous.

  
Kenneth P. Reed  
Kenneth Paul Reed

Sworn to before me and subscribed in my presence, this  
12 day of February, 1986.

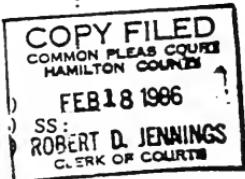
  
Sharon P. Reed  
Notary Public

Notary Public  
State of Ohio  
License No. 107,446

1/3/86

COURT OF COMMON PLEAS  
HAMILTON COUNTY, OHIO

GLENN BEEBE, et al. : Case No. A8103037  
Plaintiffs :  
vs. : AFFIDAVIT OF THERON RANDOLPH, M.D.  
JOSEPH E. PERIN, et al. :  
Defendants :  
STATE OF :  
COUNTY OF :



Theron Randolph, being first duly sworn, deposes and states as follows:

1. I am a medical doctor licensed to practice medicine in the State of Illinois. I graduated from the University of Michigan Medical School in 1933 and have been licensed to practice medicine in the State of Illinois since 1944. I am Board certified in internal medicine and sub-certified in allergy and immunology. I founded the Human Ecology Research Foundation which deals with a wider application of illness on the basis of individual susceptibility and involves immunologic mechanisms as well as non-immunologic mechanisms. Attached is my curriculum vitae.

2. Both Glenn and Sharon Beebe first presented themselves to my office in December 1982.

3. I saw both of the Beebes in 1983.

4. Based upon the history I received from the Beebes, the examinations I performed and the testing that was done, I made a diagnosis that both Glenn and Sharon Beebe are suffering from the "chemical susceptibility problem".

5. The chemical susceptibility problem has caused Glenn Beebe to experience various symptoms, including burning of the lips, dizziness, chest pains, burning eyes, headaches, itching, nausea, irritability, and nervousness.

6. The chemical susceptibility problem has caused Sharon Beebe to experience various symptoms, including headaches, nausea, inability to concentrate, burning lips and tongue, and blurred vision.

7. Based upon the history I received, the examination, tests, and findings, it is my medical opinion, based upon reasonable medical certainty, that the chemical susceptibility problem for both of the Beebes was directly and proximately caused by their exposure to the Burlington carpeting; that is, by the chemicals which were emanating from the carpeting which they purchased from Pat & Joe's.

8. It is further my medical opinion, based upon reasonable medical certainty, that the chemical susceptibility problem of which both of the Beebes suffer is permanent in nature.

Further affiant saith naught.

THERON RANDOLPH, M.D.

Sworn to before me and subscribed in my presence, this  
4th day of Feb., 1986.

Barbara Yuen  
Notary Public

TELEPHONE 818-8480-81  
THERON G. RANDOLPH, M. D.  
505 NORTH LAKE SHORE DRIVE  
CHICAGO, ILLINOIS 60611

## CURRICULUM VITAE

Graduated University of Michigan Medical School, 1933  
Internship, University Hospital, Ann Arbor, Michigan, 1933-1934  
Residency in Internal Medicine, University of Michigan Medical School,  
Ann Arbor, 1934-1935  
Instructor, University of Michigan Medical School, 1935-1937  
Research Fellow in Allergy, Massachusetts General Hospital and Harvard  
Medical School, 1937-1939  
Private practice, Milwaukee, Wisconsin, 1939-1942  
Founder and Chief of the Allergy Clinic, Milwaukee Children's Hospital,  
1939-1942  
Instructor in Internal Medicine and Chief of the Allergy Clinic,  
University of Michigan Medical School, 1942-1944  
Private practice, Chicago, Illinois, 1944 to date  
Instructor in Internal Medicine, Northwestern University Medical School,  
1944-1950

Certified, American Board of Internal Medicine, 1944  
Sub-certified in Allergy, 1945

Certified American Board of Allergy and Immunology (A Conjoint Board of  
the American Board of Internal Medicine and the American Board of  
Pediatrics, 1974

Staff, Wesley Memorial Hospital, Chicago, Illinois, 1944-1951  
Staff, St. Francis Hospital, Evanston, Illinois, 1953-1957  
Staff, Swedish Covenant Hospital, Chicago, Illinois, 1956-1971  
Staff, Lutheran General Hospital, Park Ridge, Illinois, 1959-1967  
Staff, Herron Hospital, Chicago, Illinois, 1967 to present  
Staff, American International Hospital, Zion, Illinois, 1975 to present

Membership is held in the following organizations:

American Medical Association, Chicago Medical Society, Central Society  
for Clinical Research, Chicago Society of Internal Medicine, Chicago  
Society of Allergy (Past President), American College of Allergists,  
American Academy of Allergy, American Association of Allergists and  
Clinical Immunologists, American Association of Certified Allergists,  
American Academy of Applied Toxicology, Air Pollution Control Association,  
Society of Biological Psychiatry, Academy of Orthomolecular Psychiatry,  
International College of Applied Nutrition, the Society for Clinical Ecology  
(Founder and Past President), and the Human Ecology Research Foundation  
(President).

*With regard to the request that CPSC provide precisely what it has done in the Linda Sands case (Transcript line 3785):*

Summary of CPSC's investigation of the complaint by Ms. Sands:

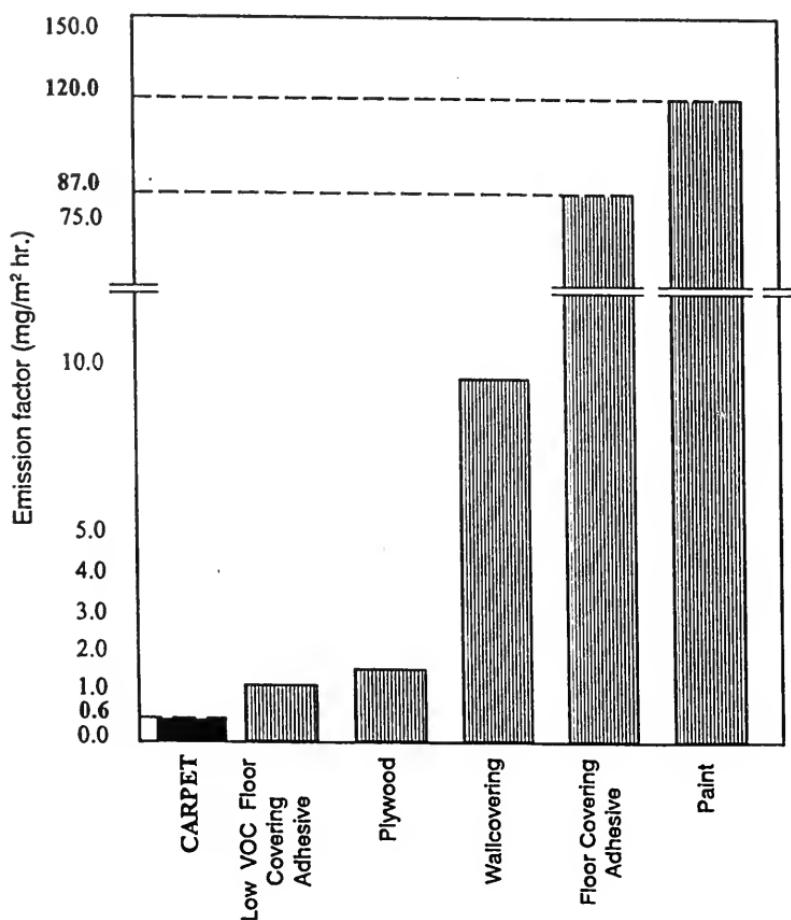
- \* Ms. Sands first called the CPSC hotline on March 13, 1987.
- \* Later that month, a CPSC staff member from the Directorate for Health Sciences called Ms. Sands and confirmed the information in the complaint.
- \* CPSC staff subsequently continued to receive complaints on carpet, indicating the presence of a potential problem. Once this became apparent (based on the volume of complaints received), the CPSC staff decided to do In-Depth Investigations (IDIs) on certain complaints where it was thought further useful information could be obtained.
- \* In Ms. Sands' case, air sampling tests for off-gassing of chemicals from carpet had been done; therefore, an IDI was assigned to CPSC Field staff on June 3, 1988.
- \* When the CPSC investigator tried to complete the IDI, Ms. Sands referred the CPSC Field staff person to her attorney, James M. Ritvo. Initially, Mr. Ritvo indicated that he would furnish photocopies of the air sampling results to the CPSC staff.
- \* Several weeks went by, in which the staff made repeated telephone calls for the information. Finally, Mr. Ritvo's office called CPSC staff and stated that the information could not be released due to litigation. This ended the CPSC staff investigation of Ms. Sands' case at that point.
- \* In 1992, the results of the work at Anderson Laboratories began to appear. The CPSC and the Environmental Protection Agency (EPA) started the process of collecting samples of "complaint" carpet as it was clear that similar testing by the Federal government on such carpets would be needed.
- \* Several possible sources of "complaint" carpet were identified, including that involved in the case of Ms. Sands. The procedure for all cases was to collect a sample of the carpet, and to obtain as much information about the history of the carpet and the nature of the complaint as possible.
- \* On August 25, 1992, a second IDI assignment was issued in Ms. Sands case to collect a sample and to gather the information.
- \* However, Ms. Sands had moved, and enough carpet for formal testing (that is, enough from which random multiple samples could be selected for testing by multiple laboratories) was no longer available. According to her new attorney, Michael F. Hanley, Ms. Sands had only saved a few pieces of carpet, which eventually were tested by Anderson Laboratories.
- \* Even though Ms. Sands' carpet was not used in the recent EPA/Anderson Laboratories testing, CPSC staff later decided to collect further information about Ms. Sands' case to supplement the earlier IDI attempt in 1988.
- \* On April 27, 1993, CPSC Field staff traveled to Vermont and contacted Eliot Burg, Assistant Attorney General for the State of Vermont. The next day, the CPSC representative spoke to Peter Clark, Principal at Montpelier High School. The purpose of these meetings was to gather information about carpet-related complaints at the high school. The Sands' case was related to this since Ms. Sands' son, Kyle, attended that high school, and was subsequently placed at another high school.
- \* On April 29, 1993, the CPSC Field staff representative spoke to Ms. Sands' new attorney, Michael F. Hanley. Mr. Hanley agreed to provide written information after clearance from Ms. Sands.
- \* On June 8, 1993, Mr. Hanley furnished information about the case to CPSC Field staff, including a medical history.

Additional information is filed for the record in the Subcommittee office.

## Anderson Method Seriously Flawed

- Moving Target -- Method Not Validated, Constantly Changing
- Federally-Mandated Good Laboratory Practices NOT Followed
- ASTM E981 NOT Followed
- No Proper Control Groups
- Observers NOT Trained to Evaluate Neurotoxicity
- Carpet Usually Baked to Over 150° In Fish Tank
- Testing Apparatus Alone Injures and Kills Mice

**PRODUCT COMPARISONS**  
**Total release of chemicals (at first 24 hrs.)**



## Industry Education Efforts

- Retailer's Video for Consumer Education
- Consumer Response Teams
- Regular Updates for Industry Database of 100,000+
- Toll-free Consumer Information Line
- Meetings with Allied Trades
- One Million+ Brochures on Indoor Air Quality

## MORGAN, LEWIS &amp; BOCKIUS

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July 15, 1993

Honorable Robert Abrams  
Attorney General of the  
State of New York  
120 Broadway  
New York, NY 10271

Re: "Carpets and Indoor Air: What You Should Know"

Dear Mr. Abrams:

Our client The Carpet and Rug Institute ("CRI") has asked that we respond on its behalf to the report prepared by the Attorneys General of New York, Connecticut, Oregon, and Vermont concerning CRI's Indoor Air Quality Carpet Testing Program. CRI could not disagree more strongly with the contention set forth in this report that the Program provides the public with misleading assurances of safety, and thus should be discontinued. CRI believes that the Program provides an innovative and useful vehicle for conveying accurate information of importance to consumers about carpet and indoor air quality, and that to discontinue the Program would be a disservice to the public. As CRI stated in its June 11, 1993 testimony before Congress, CRI will continue to work with the Environmental Protection Agency ("EPA") and the Consumer Product Safety Commission ("CPSC") in the coming months to improve the Program, and it welcomes the constructive participation of the state Attorneys General in that process.

Because the Attorneys' General report addresses issues which are of interest to our customers, set forth below are CRI's comments on, and areas of disagreement with, the points set forth in the state Attorneys' General report.

I. Establishment of CRI's Indoor Air Quality Carpet Testing Program

The Attorneys' General report states that, in 1991, "CRI without any prior notice to the states and despite our strong

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objections, initiated The Indoor Air Quality Testing Program." The report ignored the more significant fact that, from August 1990 through the end of 1991, CRI participated in an extensive and definitive review of carpet's role in indoor air quality, the 14-month Carpet Policy Dialogue with the EPA, the CPSC, and consumer advocates. As a specific consequence of that broad-based Dialogue, CRI developed and initiated the Indoor Air Quality Carpet Testing Program. The New York Attorney General has long been aware of CRI's ongoing research and evaluation in cooperation with these federal agencies in this dialogue process. In May, 1991, for example, Robert Axelrad, Director, Indoor Air Division, EPA, sent a letter to Robert Abrams, Attorney General of New York, stating:

Thus far, the carpet dialogue has made progress in several areas, due in large measure to the fact that the carpet industry has from the beginning, demonstrated a willingness to participate fully. This participation includes the commitment of time and resources to working constructively toward an effective program to understand the role of new carpet and carpet installation procedures on indoor air quality and to take practical steps to help reduce the public's exposure to chemicals that are emitted from these products.<sup>1/</sup>

Consequently, the Attorneys' General report inaccurately suggests that the carpet industry has been uncooperative with government officials.

**II. CPSC's Denial of the Attorneys' General Petition to Require Warnings for Carpet at Point of Sale**

The Attorneys' General report argues that the CPSC's rejection of their petitions to require warnings for carpet at point of sale "was wrong." Nonetheless, the report does acknowledge that "there [are] ... no peer reviewed studies of scientific evidence connecting symptoms with specific health

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<sup>1/</sup> See Letter to Robert Abrams, Attorney General of New York, from Robert Axelrad, Director, Indoor Air Division, EPA, dated May 24, 1991 (emphasis added).

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effects." CRI simply disagrees with the report's suggestion that such "level of specificity is unnecessary." The report further notes that "[t]here have been studies conducted that demonstrate a link between the total chemical emissions from carpeting and health effects in laboratory animals." Presumably, the latter statement refers to the non-peer-reviewed, highly controversial studies conducted by Dr. Rosalind Anderson of Anderson Laboratories in Dedham, Massachusetts, which neither the EPA nor industry laboratories have been able to replicate. As CRI testified before Congress, it believes the Anderson tests are seriously flawed and do not prove anything with regard to carpet.

CRI specifically disagrees with the Attorneys' General report statement that CPSC's determination "was wrong." In rejecting the position taken by the Attorneys' General report, the CPSC stated that it had conducted research and found no connection between alleged adverse health effects and carpet. Specifically, CPSC:

. . . investigated consumer complaints, analyzed chemical emissions from carpet samples using a small-chamber technique; developed a test to measure toluene diisocyanate emissions; [and] reviewed toxicity data on emissions.<sup>2/</sup>

Since it rejected the Attorneys' General 1991 petition, the CPSC has continued to conduct and sponsor research on carpet emissions. In March, 1993, the CPSC issued a status report on research undertaken on carpet and indoor air quality at the CPSC Health Sciences Laboratory, the National Center for Toxicological Research, and the Lawrence Berkeley Laboratory of the University of California. Following this even more extensive research, the CPSC staff again stated that it:

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<sup>2/</sup> "CPSC Rejects Carpet Labeling, Cites Inadequate Data," Product Safety Letter, at 2 (April 20, 1992).

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did not find sufficient evidence from its investigation that specific chemicals emitted from carpet are responsible for the complaints of adverse health effects associated with new carpet installation.<sup>v</sup>

Consequently, the Attorneys' General report's suggestion that the Anderson tests are "more than [an] adequate basis" to act, despite all the CPSC and other evidence to the contrary, is, in our view, simply misguided. Such non-peer reviewed, unpublished, and non-validated tests are clearly insufficient support for legal or administrative determinations. See *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 61 U.S.L.W. 4805, 4809 (U.S. June 28, 1993), setting out standards for evaluation of scientific evidence.

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**III. CRI's Program and Brochure Do Not Mislead the Public About Carpet Safety**

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As noted above, CRI strongly disputes the report's contention that CRI's Program and brochure might have misled consumers about carpet safety. The Program, as recommended by the Carpet Policy Dialogue, has a very specific purpose and focus - it is designed solely to reduce emissions of total volatile organic compounds (VOCs) from an already low emitting product. The brochure and the label simply explain in clear and unambiguous terms, that the tag is a means to inform the public and the purchaser that carpet bearing the tag has met the emissions reduction program criteria. The Attorneys' General report offers no evidence of consumer confusion or misunderstanding as to the Program, and CRI is not aware of any evidence of consumer misunderstanding.

The state Attorneys' General report further suggests that the CRI Indoor Air Quality Carpet Testing Program is misleading and/or does not adequately protect the public because it: (1) "does not address the substantial additional emissions from other carpet installation materials such as padding and adhesives;" and (2) "has not been established that the four analytes CRI selected are the appropriate chemicals to test." With respect to the first issue, it is important to recognize that CRI's program is,

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<sup>v</sup> CPSC Status Report on Chemical Emissions from New Carpet, at 11 (Mar. 22, 1993).

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and was intended to be, only a carpet testing program; thus, its emissions criteria apply only to carpets. Concerning the second issue, as noted above, the CRI program is intended solely to reduce VOC emissions, and the Attorneys' General report is simply incorrect in attempting to redefine the program as one dealing with any other aspect of public health. In fact, the analytes for which CRI tests were those specifically identified during the EPA Carpet Policy Dialogue as the primary emitters of VOCs. Accordingly, in a program designed to reduce VOC emissions, it is clearly appropriate to test for these four analytes.

As the New York Attorney General is aware, the EPA has affirmatively encouraged CRI's efforts to reduce VOC emissions from carpet. While, as a matter of policy, the EPA could not recommend a particular emissions level as "appropriate," EPA officials have supported CRI's initiation and conduct of the testing and labeling program. EPA Acting Associate Administrator Victor Kimm stated in his testimony before Congress that the goals of the Carpet Policy Dialogue included "develop[ment] [of] an analytical test method to measure TVOC emissions from carpet floor covering products," "obtain[ing] voluntary agreements from carpet floor covering industries to undertake testing to measure TVOC emissions from their products" and "provid[ing] information to the interested public about new carpet and TVOC emissions."<sup>1/</sup> Accordingly, at the conclusion of the EPA Carpet Policy Dialogue, EPA officials supported CRI's efforts to establish VOC emissions criteria that would serve as a guideline in attempts to decrease VOC emissions from carpet. Further, it was during the EPA Carpet Policy Dialogue that the environmental chamber test, used by CRI, was approved by consensus. Indeed, in the above-referenced letter to the New York Attorney General, Mr. Axelrad of EPA advised Mr. Abrams that the Dialogue participants would "take practical steps to help reduce the public's exposure to chemicals that are emitted."<sup>2/</sup> The CRI Indoor Air Quality Carpet Testing Program was initiated in order to fulfill this commitment.

<sup>1/</sup> Hearings Before the Subcommittee on Environment, Energy, and Natural Resources of the House Committee on Government Operations, 103d Cong., 1st Sess. (1993) (statement of Victor J. Kimm, Acting Assistant Administrator for Prevention, Pesticides and Toxic Substances, EPA).

<sup>2/</sup> See Letter to Robert Abrams, supra note 1.

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It should also be noted that CRI voluntarily established its testing program, even though carpet is recognized by the EPA and others as a low emitter of VOCs, compared to other building materials and household products. Victor Kimm of EPA testified before Congress that "the dialogue process brought the carpet emissions issue 'front and center' in the public eye as a source of concern about indoor air pollution, despite the fact that many other indoor sources (*e.g.*, cleaners, strippers, pesticides) may pose equivalent, if not greater potential exposures and risks."<sup>5/</sup> VOCs originate from a wide variety of sources, such as building materials, cooking, heating, furnishings, and cleaning products. The EPA has reported that carpet is the lowest emitter of VOCs when compared to plywood, wall covering, adhesives, and paint.

Finally, the Attorneys' General report presents no evidence that the public has been misled by CRI's Indoor Air Quality Carpet Testing Program. While representatives of the Attorneys General have interviewed a number of retailers, these interviews do not provide information concerning the perceptions of consumers. CRI agrees, however, that additional retailer education is needed and intends to address this matter promptly. While CRI hopes that retailer problems are infrequent and that the instances cited in the Attorneys' General report are isolated incidents, CRI has already initiated steps to ensure that retailers are thoroughly educated about the program and are conveying accurate information. To that end, as noted above, CRI has committed to working with the EPA and CPSC to improve its public education programs and welcomes the participation of the state Attorneys General in this process.

#### IV. Current Research

The Attorneys' General report states at Part VI. that studies conducted by Dr. Rosalind Anderson of Anderson Laboratories present "troubling results." An independent Scientific Advisory Board, convened by CRI to review the Anderson tests and all other available evidence, concluded that the Anderson test method provides no sound scientific basis for

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<sup>5/</sup> See Hearings Before the Subcommittee on Environment, Energy, and Natural Resources of the House Committee on Government Operations, supra note 4.

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determining whether there is any causal link between carpet and alleged adverse health effects. This Board stated: "Dr. Anderson's protocols are seriously flawed such that her findings are irrelevant for reaching any conclusion on the subject of carpet and human health." Indeed, Dr. Anderson herself has said that her tests do not prove causation. Further, the validity of Dr. Anderson's protocol as a scientific method to provide any kind of result has not been established. As EPA Acting Assistant Administrator Victor Kimm testified before Congress on June 11, 1993, "[i]ndependent replication is . . . necessary to establish that a scientific finding is reliable."<sup>1/</sup> To date, the EPA, three large, highly regarded industrial toxicological laboratories, and one independent laboratory have been unable to replicate or validate Dr. Anderson's test results. In contrast to Anderson Laboratories, these laboratories operate under EPA's Good Laboratory Practices to ensure the integrity and scientific credibility of their toxicology research. EPA Acting Assistant Administrator Victor Kimm further stated that, in its tests, not only did EPA "not independently replicate the severe toxicity described by Anderson Laboratories," it "did not produce any convincing signs of even mild toxicity attributable to carpet." Based upon these results, EPA testified that it "simply does not have a sound scientific basis . . . to conclude that emissions of 4-phenylcyclohexene (4-PC) or other carpet constituents can be causally associated with the reported health problems."<sup>2/</sup>

As CRI testified to Congress, Anderson Laboratories' test method is flawed for a number of reasons: (1) contrary to customary scientific methodology, it does not use concurrent control animals when running each test in order to eliminate bias in laboratory technicians' observations; (2) Anderson Laboratories' staff lacks training to conduct neurological evaluations of test animals; (3) testing by other laboratories has demonstrated that the handling of mice required under the Anderson test method and the test apparatus itself can injure or kill mice; (4) carpet samples are tested at unrealistically high temperatures; (5) a fish tank containing materials such as rubber caulking that can release contaminants is an inappropriate

<sup>1/</sup> See Hearings Before the Subcommittee on Environment, Energy, and Natural Resources of the House Committee on Government Operations, supra note 4.

<sup>2/</sup> Id.

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testing chamber; and (6) use of unfiltered ambient air in the test fails to eliminate air contaminants as a possible cause of results (e.g., from the automotive paint shop located immediately adjacent to Anderson Laboratories).

Recently the EPA, Dr. Anderson and several industry laboratories cooperated to test the identical carpet samples according to the Anderson protocol. Only Dr. Anderson obtained results showing adverse effects in mice. The peer review panel of outside experts suggested that the "blinding" of the study in Dr. Anderson's laboratory had been compromised. The EPA has requested the industry laboratories that participated in these studies to join it in publishing their results in a peer-review journal, and these laboratories have agreed to do so.

In view of the extensive, properly conducted scientific research which failed to find any indication that carpet might cause adverse health effects, and the fact that the Anderson test method has never been validated, it is incomprehensible to CRI why the report chose to focus on Anderson's highly questionable "science" as a basis for demanding that the CRI Indoor Air Quality Carpet Testing Program be abolished. Tests so flawed simply do not constitute credible scientific evidence. See Daubert, supra, at 4809.

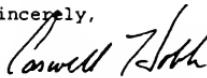
As CRI indicated in its testimony to Congress, CRI has strived, and continues to strive to act in a responsive, responsible and cooperative manner and to fully inform the public based on sound science. CRI appreciates the views of the states concerning its Program, but points out that the report, when carefully read, can be seen to focus almost exclusively on what the testing program does not do, rather than on what it does: the report faults CRI for testing only carpets, not adhesives, padding, cushion; for testing for only 4 analytes; for testing too infrequently. These are all legitimate issues which are being taken under advisement by CRI. None of these issues, however, provides a basis for terminating CRI's program. Rather, all of these points in fact support expansion of CRI's program. As noted above, CRI has always viewed its testing and labeling program as a "dynamic" one, that will be improved as further information is obtained, and as CRI continues to

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cooperate with the EPA, CPSC, and the states. Discontinuance of the CRI Indoor Air Quality Carpet Testing Program would serve only to eliminate an effective means of both reducing VOC emissions and communicating with the public about carpet and indoor air quality, for no beneficial purpose, with no sufficient scientific basis to do so.

Sincerely,



Caswell O. Hobbs  
Counsel for  
The Carpet and Rug Institute

cc: Ronald E. VanGelder

**BUILDING OWNERS AND MANAGERS ASSOCIATION INTERNATIONAL**

**COMMENTS TO THE**

**COMMITTEE ON GOVERNMENT OPERATIONS**

**SUBCOMMITTEE ON ENVIRONMENT, ENERGY AND NATURAL RESOURCES**

**UNITED STATES HOUSE OF REPRESENTATIVES**

**ON**

**NEW RESEARCH ON THE POTENTIAL RISKS OF CARPETS**

**JUNE 11, 1993**

**Building Owners & Managers Association International  
1201 New York Avenue, NW, Suite 300  
Washington, DC 20005  
(202) 408-2684**



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Indoor air quality (IAQ) is a growing concern for building owners and managers across the country. We appreciate the opportunity to submit comments to the subcommittee and we commend efforts to assist in the identification of contaminants which can be reduced, replaced, or removed to improve the indoor environment.

Well before it received the current legislative and regulatory attention, indoor air quality -- as an important element of a first-rate indoor environment -- was a priority for building management. Unfortunately, blame is often cast on "Sick Building Syndrome" when, in fact, buildings are rarely the problem. What we have found after numerous indoor air surveys is an overwhelming need for more research to identify potential pollutants. Too often indoor air problems develop because occupants inadvertently contribute to the introduction of contaminants or inhibit the proper operation of ventilation systems by storing newspapers and cleaning materials, cooking or smoking, and blocking or shutting air vents.

More importantly, however, are the increasingly troublesome contaminants presently being attributed to certain carpets and furnishings. That "new carpet smell" is being accused of carrying with it irritating chemicals, and we are greatly concerned -- concerned because virtually every office is carpeted; concerned because too little information exists on whether or not carpeting does actually contribute to poor indoor air; and concerned because "Sick Building Syndrome" is being blamed on building owners and managers, and we need help in addressing this situation.

We do not mean to cast blame on carpet manufacturers. We aim to call your attention to our frustration with the lack of credible research and guidance for source control. If carpet is a

problem, we want to know about it, we want to learn how to manage it, and we want to know what to tell our tenants.

The Environmental Protection Agency's (EPA) best-selling publication, *Building Air Quality: A Guide for Building Owners and Facility Managers*, is a valuable resource for addressing indoor air quality concerns, and building management needs more such objective information and research into this issue. The EPA Guide offers excellent guidance and BOMA is proud to have assisted with its development and to have promoted it nationwide. Based on this book, BOMA, in cooperation with the EPA, launched a nationwide seminar series which has reached over 50 cities to date. "Improving the Indoor Air Condition" is aimed at assisting building management in improving the quality of indoor air by identifying and preventing potential sources of IAQ problems, managing and eliminating contaminants, and working effectively with tenants to collectively address IAQ concerns. These seminars provide the exchange of information necessary for the prevention and mitigation of indoor air quality problems, to allow building management and tenants to cooperatively implement IAQ management programs.

Of all the steps taken to address an indoor air problem, few are as important as the concerned and professional attention given the tenant. Regardless of the potential cause or the final outcome, to the tenant the problem is real and demands immediate attention. Building management strives to handle complaints in a timely and professional manner, while educating tenants that the responsibility for addressing indoor air quality is shared by all. Thanks to air testing, extensive filtration, and good preventive maintenance, buildings function as the "lungs of the city," providing tenants with indoor air that is substantially cleaner than the often humid, pollen-laden and polluted air outdoors.

Good indoor air is a marketplace demand. When tenants agree to lease space in a building, they demand various goods and services which include security, clean surroundings, and a productive work environment. Indoor air quality is one of those demands. No tenant tolerates poor indoor air, and few tenants are shy about voicing their concerns directly to building management. It is in the best interest of the building management to ensure good indoor air because, otherwise, the tenant will look for space elsewhere.

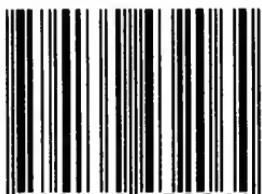
Building management continually strives to improve its response to indoor air problems, and encourages your interest in research into source identification and control of potential indoor pollutants. Asbestos cost our industry tens of billions of dollars. We cannot afford to let indoor air quality become the "asbestos of the 90's," which is why we look forward to working with you, as well as with the EPA and OSHA, in securing sound research and good guidance on this issue.

\* \* \*

Founded in 1907, the Building Owners and Managers Association (BOMA) International is a dynamic federation of 98 local associations whose members own or manage over 7 billion square feet of commercial properties and facilities in North America. The membership -- comprised of building owners, managers, developers, leasing professionals, facility managers, asset managers and the providers of goods and services -- collectively represents all facets of the commercial real estate industry. BOMA is firmly established as the respected resource on national matters affecting the industry, such as the Americans with Disabilities Act (ADA), Indoor Air Quality (IAQ), the phaseout of chlorofluorocarbons (CFCs), passive loss rules, and more.



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